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ABSTRACT

Presented in the third and final evaluation report (1975-76) of Project Talented and Gifted are results of an appraisal of over 50 student participants (8-15 years old) and the project staff and resource personnel. The project is described as a 3-month institute to provide experiences in areas such as learning to use creative thinking and problem solving strategies in language arts, science and mathematics, and music. Results and recommendations from the first and second evaluations are outlined in Part I and the methodology of the study is described, with additional information on design, experimental treatment, and statistical analyses. Part 2 presents analyses of the student participants' creative self-perceptions as reported in the first and second evaluation, and procedures and results from the final evaluation. Included in Part 3 are data generated by students and parents, resource people, project coordinators, and the director. Part IV covers summary conclusions indicating non-support of the effectiveness of the program by experimental evidence, but support of the effectiveness of the program in the areas of cognitive and affective growth by observational evidence; and recommendations such as basing selection of gifted students on their exhibited talent, adopting elements related to the teaching of specific problem solving techniques and research strategies, and requiring facilitators to attend a problem solving institute. (IM)

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PROJECT TALENTED AND GIFTED FINAL EVALUATION REPORT

(ESEA TITLE III REGION II)

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For the West Virginia State Department of Education

Charleston, West Virginia

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INTRODUCTION

This is the third and final evaluation report of Project Talented and Gifted covering the period 1st July, 1975 to 30th June, 1976. It consists of (1) an appraisal of the creative, intellectual and achievement development of talented and gifted student participants of the Project relative to the experimental format outlined in the Addendum to the initial proposal, and (2) an appraisal of the function and operation of the Project Staff relevant to the purpose of the Project.

Relative to (1) evaluation concerns itself with the first intake of 10 to 12 year olds who have been Project participants since September 1, 1973, and the second intake of 8 to 10 and 14 to 15 year olds who have been Project participants since they were appraised for selection in January, 1975.

Measures that were used to appraise the creative and intellectual development of all participants were the Torrance Tests of Creative Thinking (Figural Form), Thinking Creatively with Sounds and Words, Standard Progressive Matrices, and California Test of Mental Maturity (Short Form), and the achievement development of the first intake of participants alone was the Stanford Achievement Test. Something About Myself was also used as a measure of participants' perception of their creative development.

Other information for the evaluation report was obtained from Resource People, Project Coordinators and Director's reports. Profiles of only the first intake of experimentals and controls showing individual growth and development in intellect, creative thinking and achievement have been included in the seperately bound appendices to this report.

The final evaluation concludes with an appraisal of the Project since its inception with relevant recommendations.

ACKNOWLEDGEMENTS

I wish to place on record my appreciation and thanks to all who have contributed in one way or another to the successful production of the three evaluation reports of Project Talented and Gifted especially to the students, parents, teachers, principals and administrators involved.

Further, I am most grateful to Lewis Wilcox for his sustained support, cooperation and flexibility, and for his understanding of the many problems that beset the evaluation of this project, and for his willingness to assist me overcome them.

I am very grateful as well to the Project Coordinators Jessie Kellam, Mary Glass, Mary Fike, Pat Mills and Carolyn George for their assistance in the recording of data, test administration, constructing instruments and other related matters, and for the unique team work they displayed in the difficult task of data collection and its preparation for analysis.

Thanks are also due to the team of test scorers, Donna Basham, Mary Suzzane Browning-Gibbs, Annette Khatena, Pam Marshall, Lynn Jones, Mary Louden, and Allan Khatena for their persistance and dedication over the three years of the Project.

Deserving of special thanks for assistance in the statistical analyses of the reports are Mary Glass and Mary Suzanne Browning-Gibbs.

Finally for help in the reproduction services of the evaluation reports my gratitude go to the Project Staff and especially to Kathlyn Osburn and Pamela Bryan.

A work of this magnitude cannot be the effort of a single person: it is with great warmth that I shall recall the support and dedication of all who took part in the evaluation process of Project Talented and Gifted.

PART I: EVALUATION OF THE EXPERIMENT

The First Evaluation Report of the Project outlined the circumstances need and directions leading to the initiation of Project Talented and Gifted in Region II of West Virginia and the objectives of the first appraisal (Khatena, 1974c). This appraisal involved the measurement of the "effectiveness of the program for talented and gifted students as it relates to (1) the development of their creative thinking abilities, (2) parents' perceptions of their children's creative orientations and student perceptions of themselves, and (3) observations of the progress of the Project by its Director, Coordinators and Resource Personnel with an example of Student appraisal of one component of the program in terms of recent Summer workshop experiences" (P. 6).

The evidence obtained showed that talented and gifted students of the Project who were exposed to an experimental program rooted to creativity for a period of just over three months demonstrated significant improvement in verbal originality as measured by Onomatopoeia and Images over those who had not been exposed to the program. The program did not appear to have effected improvement in figural fluency, flexibility, originality and elaboration as measured by the Torrance Figural Tests in favor of the experimentals; however, improvement in figural originality was found to be a function of age and favored controls.

Evidence of creative perceptions as measured by Something About Myself and derived from parent and experimental student responses showed that students of the Project were weakest on Initiative, strongest on Environmental Sensitivity and Intellectuality, and moderately strong on Self-Strength, Individuality and Artistry.

The findings of the first evaluation report led to the following recommendations (Pp. 63-66):

(1) Special attention and emphasis need to be given to the development of four creative thinking abilities, namely, fluency, flexibility, originality and elaboration.

(2) Activities that encourage the development of these creative thinking abilities including the use of analogy, restructuring and synthesis need to be planned for these students and these should be rooted to the affective domain of creative thinking as described by Frank E. Williams.

(3) More sustained efforts should be made and more substantial blocks of time planned for the exposure of experimental students relative to the first two recommendations, facilitated by more innovative scheduling of school time for the students with the help of the principals and other education authorities.

(4) Cooperative efforts as in group work in the context of mild competition among groups of experimental students to improve the motivational level and create productive striving efforts need to be planned.

(5) A system of rewards needs to be established for more effective control of experimentals: a fine transition from extrinsic reinforcers to intrinsic reinforcers may have to be made with the development of the program.

(6) Experiences levelled at developing creative attitudes to learning that will establish creative sets to mental functioning and performances need to be arranged for these students.

(7) Experiences for more effective use of the library levelled at developing skilful use of the facilities and resources it provides should be arranged: this could find connections with the projects that

students decide to undertake when students become more sensitive to their need to use the library. They should be taught the proper use of index cards for recording data they find with the purpose of developing proper storage for efficient retrieval of information as and when required. Maintenance of library activities need to be kept at an optimal level with encouragement given to students to apply the creative problem solving skills they have learned. Some unobtrusive system of checks may be devised to facilitate appropriate use of the library.

(8) Students need to be made more aware of the different sources of knowledge, namely, through experience, by authority, through deductive and inductive reasoning, and their relative strengths and weaknesses. Further, they need to be given more experiences in the scientific method and its operational steps that should take them form the initial problem sensing stage to the final solution stage. The different research strategies offer different approaches to the study of various problems; students may learn about them so that they may be better able to plan the use of the most appropriate technique to find tentative answers to their questions.

(9) Greater emphasis may be given to students needing to complete their projects with something to show for their efforts and this in turn will provide yet other occasions for positive reinforcements.

(10) Visits to various places of interest geared to learning are of great relevance and can be made more effective if tied in with student project needs.

(11) Provision of leadership experiences should receive considerable attention in developing the Program Model for the second year of the Project. It should be planned that students be encouraged to exercise

initiatory activities to an even greater extent than in the first year with opportunities for them to assume leadership roles. This ought to include attempts to make breakthroughs relative to their strengths either as individuals or in groups, by way of initiating situations leading to composition, invention, reorganization, planning, and working together possibly on larger projects like a dramatic or musical production, or newspaper production with opportunities for the formation of many sub-groups and leadership positions related to the aims of the total project.

(12) The Coordinators' suggestions on the creation of Mini Courses in special areas of interest are highly relevant and should find inclusion in the Program Model for the second year of operation, the structure and content of which can be determined at the second Summer Institute.

(13) It would be of great value to the evaluation component of the Project to have the progress of the initial 90 experimentals more carefully recorded and reported in time for the next evaluation. The form this will take may be determined by the Coordinators in consultation with the Project Consultant.

(14) Appraisal of the two larger experiences in the Program by experimental participants will also be helpful to the planning of further experiences for them in the third year of the Project, and the form of this may also be determined by the Coordinators in consultation with the Project Consultant.

(15) The need for an additional Coordinator, more Resource Personnel and Secretarial help with the expansion of the Project as forseen and observed by the Coordinators and Director is endorsed.

(16) Resource Personnel need to be appropriately oriented to the aims and goals of the Project and its Program for congruence in their interactions with the students.

(17) Means of using participant students' school teacher to maintain the strengths students have gained through the Program, and to assist in the extension of these strengths in their school activities should be explored.

(18) The possibility of giving awards for outstanding service to the advancement of the Project's aims and goals by Parents, Resource People, Educators, Administrators and the like should also be explored. Certificates of Merit appropriately presented at one of the Project's public functions is one effective way of providing incentives to those who are important in the process of facilitating the development of these gifted students. Other ways should also be considered.

The Second Evaluation Report (Khatena, 1975) examined (1) the effects of the implementation of these recommendations relative to the refinement of the experimental Program of the Project as measured by the Torrance Tests of Creative Thinking, and Thinking Creatively with Sounds and Words; (2) the effects of the Program on the enhancement of nonverbal and verbal intelligence as measured by the Standard Progressive Matrices, and California Test of Mental Maturity (Short Form); and (3) to examine the effects of the Program on academic achievement as measured by the Stanford Achievement Test and Musical Aptitude Profile.

Further, evaluation of the effectiveness of the Project was also done by an examination of the development of experimentals as described by their creative self perceptions measured by Something About Myself, and the reports submitted by the Project Director and the Coordinators which included teacher evaluation of students and student evaluation of the Program.

Relative to the student and Program, experimental findings of the Second Evaluation Report provided evidence that the talented and gifted students of the Project who were exposed to a program of activities rooted to creativity over a 15-month period have shown significant improvement in verbal originality as measured by Onomatopoeia and Images, a component of the Thinking Creatively with Sounds and Words battery, and significant improvement in figural flexibility relative to the 10 year old experimentals as measured by the Figural Form of the Torrance Tests of Creative Thinking when compared to the performance of those students who had not been exposed to the Program. No other significant main or interaction effects were observed relative to both measures of creative thinking abilities. In addition, no significant change was observed relative to both verbal and nonverbal intelligence as measured by the Standard Progressive Matrices or the California Test of Mental Maturity. Significant interactions of program x age were found generally in favor of experimentals in the area of Language Arts alone as measured by the Stanford Achievement Test. Further, the creative self perceptions of experimentals as measured by Something About Myself showed significant improvement in the areas of Self Strength and Individuality with some favorable though not significant change in Initiative over controls. When the creative self perceptions of experimentals observed both in 1974 and 1975 were compared, it was found that they had significantly improved in five of the six orientations and the total scale, namely, Environmental Sensitivity, Initiative, Self Strength, Individuality and Intellectuality, with a decline in Artistry. This meant that experimentals on the whole did perceive themselves as more creative at the end of the second year of the Program than they did after just three months of exposure to it.

Some of the more significant variables that might have affected the experiment to give the above findings were discussed earlier in the report (Pp. 41-42), namely, the lack of trained Resource Personnel, loss of experimental and control students, adverse testing conditions, differential and inconsistent support by school personnel.

Other evidence in terms of observational data derived from the perceptions of the Coordinators and Director indicated that generally gifted students of the Project had been well looked after, provided with educational opportunities beyond what they received in their schools, were developing in ways not easily or always screened by tests, were more independent in study, had greater self-esteem and poise, and had become better adjusted socially and worked effectively in groups as well as on their own. Problems in the main hinged upon transportation difficulties, conflicting interests and scheduled activities, and the need for more intense exposure to the Program over a longer period of time.

Teachers' perceptions of their gifted students attending the Project tended to be ambivalent. Generally, they seemed inadequately aware of the program to which their students were being exposed, and of the serious nature of the educational opportunities provided by the Project. These might account for the reluctance of some teachers to support the efforts of the Project to accelerate the development of their able students. Of particular relevance, was the lack of understanding shown by some teachers of the significance of the Project's Thursday sessions, making it difficult for their students to make up school work missed by them on legitimate release time. This had negative effect on student attendance of Thursday sessions, was anxiety producing, and detrimental to their learning both in and out of school and at the Center.

Suggestions offered by the Students, Teachers and Coordinators for the third year of the Project related to matters of program content and method of execution; more effective communication with schools and teachers for better handling of the release time problem as it affected the absence of students from regular school work, make-up assignments and grading; the establishment of more adequate lines of communication between Coordinators and Teachers relative to information about students of the Project and follow-up work in the regular classroom; help to solve some of the transportation difficulties experience by Project participants; the call for some appropriate orientation of Resource Personnel relative to the rationale, directions and strategies of the Project for more effective implementation of the Program in the third year of the Project; and some extension to the Project' library facilities by way of purchasing paperback books.

On the basis of the experimental and observational evidence the following recommendations relative to emphases in the third year of the Project were made:

(1) Further emphasis needs to be given to the development of the four creative thinking abilities namely, fluency, flexibility, originality and elaboration, and to facilitate this the deliberate use of New Directions in Creativity by Dr. Joseph Renzulli (1973) is recommended especially for the first three age groups of experimentals.

(2) The application of creative thinking strategies learned from Dr. Joseph Renzulli's program to students learning in the several subject areas should be encouraged.

(3) A more systematic attempt to encourage experimentals to strive for higher levels of achievement in the areas of language arts, social studies, science, mathematics and music. Mini courses at introductory and higher levels might be used to accelerate learning in these subjects.

(4) Incentives by way of citations of merit for achievement at high levels should be introduced. Tokens, the form of which could be designed by the Coordinators, might be given to experimentals for successful completion of one or more Mini courses to be accumulated later to be exchanged for possibly a book reward or the like.

(5) Students taking Mini courses should be encouraged to show some product of learning achieved--this could vary from better writing skills in the form of a good essay on the subject or an imaginative story relative to what has been learned to some thing made or "invented" illustrative of the learning that has been completed making way for yet other learning activities.

(6) It is recommended that experimentals continue to work, in groups but as teams, towards the achievement of some end product.

(7) Research activities should be further encouraged both as group experiences (and this can be tied in with the recommendation No. 6) and as an individual exercise. To give meaning to this approach students' suggestion of handling real problems is endorsed. Where students experience a felt need they should be encouraged to explore this using research strategies with which they have now become very familiar; where no need is felt, then the Coordinators and Resource Personnel should have available some good researchable problems relative to the learning experience the students have had or are having.

(8) The continued effective use of the library should be encouraged.

(9) Arrangements should be made for an exhibition of the products of the students at the end of the final year of the Project. Experimentals should be informed at the beginning of the third year of the Program about this. A few substantial rewards for best individual and group efforts might be offered as incentives towards this end, with criteria

set up for judging excellence of products well in advance so that students could begin striving to do an excellent job right from the start.

(10) More deliberate attempts to provide leadership experiences for the experimentals need to be made. It is recommended that different leadership roles be created if necessary and that each experimental have the opportunity of assuming the responsibility of at least one role.

(11) Continued attention should be given to the keeping of accurate records of each experimental student in the third year of the Project.

(12) The cooperation of teachers of gifted students in the program must continue to be sought so that they will facilitate student attendance and learning at the Thursday as well as the Saturday sessions.

(13) The recommendation by the Coordinators of a weekly Thursday session for students at the Center is endorsed.

(14) Alleviation of transportation difficulties suggested by the Coordinators should also be explored so that students can put in the maximum attendance time offered by the Project. On the basis of the great variability in participation hours among experimentals (P.40), it is recommended that effective planning begin as soon as possible to ensure that each student of the three experimental groups evaluated in this report put in a minimum number of hours (possibly 50 to 60 participation hours in the Program during the third year of the Project.

(15) Every effort should be made to ensure better and more effective testing conditions for the final evaluation of students of the Project (P. 42) so that measurement inconsistencies and disruptions will not invalidate the experimental findings.

(16) Every effort should be made to prevent further loss of subjects relative to all groups of experimentals and controls.

RELATED LITERATURE

Information regarding the need to develop creative thinking abilities of talented and gifted children, some major strategies that have been successfully used for the purpose, and the role of the present Project in this respect have been outlined in the First Evaluation Report (Pp. 67 and 37), and recapitulated together with other relevant studies in the Second Evaluation Report (Pp. 7-11 and 43) of the Project.

PROCEDURES

The methodology of the study was described in the First and Second Evaluation Reports but is also being presented in this Final Evaluation Report. To it will be included details relevant to this report in terms of additional information on design, experimental treatment and statistical analyses.

1. Design

(a) A modified version of the two groups randomized pretest-posttest experimental design (Campbell & Stanley, 1966) was used for the first intake of Project participants aged 10-12 years, such that there was an experimental and a control group each sub-divided into three age categories. Subjects were selected at random for the two treatments groups with the group that was to receive the experimental treatment or program selected at random. By randomizing the treatment it was expected that reactive effects due to experimental arrangements would be controlled. In addition, to control for the Hawthorne effect to some extent, the control group was provided with limited activities peripheral to the program; besides, testing and retesting members of the control group together with those of the experimental group was expected to contribute further to this control. The effects of the program on the development of verbal and non verbal intelligence,

creative thinking abilities and achievement were measured.

(b) The one group time series quasi-experimental design (Campbell & Stanley, 1966) was selected for use with the second intake of Project participants aged 8-10 and 14-15 years since it was considered undesirable to leave out gifted children who merited selection for Program participation to act as controls. These experimentals then would be exposed to pretesting followed by exposure to the experimental Program for one year, and then posttested with further exposure to the experimental Program in the second year of participation and then posttested again. The effects of the Program on the development of verbal and nonverbal intelligence and creative thinking abilities were to be measured.

Though not a good practice, this design was modified, however, soon after participants began attending the experimental Program by ommission of the projected intermediate posttesting because the protracted screening time for the selection of these subjects left insufficient time for their adequate exposure to the Program. However, this changed the design to one that is very weak, namely the one group pretest-posttest no control group design which gives no assurance of controlling for most of the internal and external validity threats to an experiment (Campbell & Stanley, 1966). The Project must then depend in the main on the findings relative to the first intake of experimentals and controls for clues about the success of the experimental program.

The Project Staff in consultation with the Project Consultant decided to omit posttesting the second intake of students aged 8-10 and 14-15 years for achievement because the administration of the achievement

battery as posttest would take Project participants too many days away from school, and would generally fetch small returns relative to the expenditure of money, Coordinator time and energy.. The findings of the Second Evaluation Report gives reasonable justification for the decision.

2. Subjects

Principals, teachers and school psychologists in particular were invited to make referrals of students between the ages of 10 and 12 years (1973), and 8, 9, 10, 14 and 15 years (1974) attending elementary or junior high schools in Region II of West Virginia whom they thought were talented and gifted according to the following criteria: (a) IQ level of 130 and above as measured by the Stanford-Binet, WISC, or any other established group test of intelligence such as the California Test of Mental Maturity, Otis Quick Scoring Test, or the Cattell Culture Fair Test; (b) high achievement levels in the areas of language arts, mathematics, science, and music as measured by a standardized test or teacher observation; and (c) high interest and motivational level.

(a) Participants Aged 10, 11 and 12 years.

Students aged 10 to 12 years were referred to the Project in 1973 for screening, and on the basis of their performance on intelligence, creativity and achievement measures, 180 of these students were selected as Project participants. The raw scores they obtained on (a) the Short Form of the California Test of Mental Maturity, (b) the Raven's Progressive Matrices, (c) the Torrance Test of Creative Thinking, (d) Thinking Creatively with Sounds and Words, and (e) the Stanford Achievement Test, were converted to stanines, and an average stanine was determined as an index of their general level of giftedness.

These students were grouped in rank order in their subject area of preference and according to age preliminary to their selection for the two treatment groups. It must be noted that two sub-tests of the Music Aptitude Profile were administered only to students who had opted for music as clues that would assist in the differentiation of these students, but whose scores were not included with those of the other measures to determine average stanines. The average stanine acquired by each referral was used for the selection of the top 180 students of the Project. A table of random numbers was then used to select 90 students for each of the two groups such that there were 30 of each level with 10 students per subject interest area represented in each age group. The treatment groups were then determined as experimental and control at random by the flip of a coin.

It must be noted that the number of subjects who attended the first posttest sessions decreased to 27 and 29 for the 10 and 12 year olds of the experimental group, and 23, 23 and 19 for the 10, 11 and 12 year olds of the control group respectively: in all experimental mortality numbered four subjects for the experimental group and 25 subjects for the control group relative to the first evaluation.

The number of subjects who took the second posttests in 1975 decreased in number generally to 23, 22 and 21 for the 10, 11 and 12 year old experimentals (N=66), and 19, 24 and 14 for the 10, 11 and 12 year old controls (N=57) with some small variation in the groups due to either absence from the posttesting sessions. The loss of 57 subjects here (E=24 and C=33) was related to attendance at the posttesting sessions rather than withdrawl from the Project altogether. Student participants who remained in the Project then numbered 71 experimentals and 58 controls.

Further loss of subjects took place in the third and final posttesting administered in 1976, with 10, 11 and 12 year old experimentals numbering 15, 22 and 19 respectively (N=56), and controls numbering 15, 19 and 11 (N=45). The loss of 79 subjects (E=34 and C=45) was in part related to incomplete test data due to irregular attendance of posttest sessions and in part to withdrawl from Project participation, such that student participants who remained in the Project to the end were 56 experimentals and 45 controls from the original 90 in each group.

(b) Participants Aged 8-10 and 14-15 years.

Students aged 8 to 10 and 14 to 15 years were referred to the Project in the same way in 1974 as students aged 10 to 12 years described in 2(a) of this section, except that their scores on the Musical Aptitude Profile were taken into account in the computation of stanines and selection process. The top 30 students from each of the five age groups (N=120) were selected as the second intake of Project experimental participants. At the single and final posttesting the number of students in each group participating in the experimental program decreased to 25, 23, 23, 15 and 19 relative to 8, 9, 10, 14 and 15 year olds respectively (N=45). The loss of 45 of the original 120 subjects was either due to absence from the posttesting sessions or withdrawl from the Project such that data for only 75 of these experimentals were available.

3. Instruments

Several tests were used to measure the effects of the program for the final evaluation: the Torrance Tests of Creative Thinking Figural Form B (Torrance, 1966, 1974) was used to measure four creative thinking abilities, namely, figural fluency, flexibility, originality and elaboration; Thinking Creatively with Sounds and Words Form 1A (Khatena & Torrance, 1973; Torrance, Khatena & Cunnington, 1973) was used to

measure verbal originality; the Standard Form of the Progressive Matrices (Raven, 1960) was used to measure nonverbal intelligence; the Short Form of the California Test of Mental Maturity (Sullivan, Clark & Tiegs, 1963) Levels 3 (10-11yrs.) and 4 (12yrs.) were used for the first student intake, and Levels 2 (8-9yrs.), 2H (10yrs.) and 5 (14-15yrs.) were used for the second intake of students to measure verbal-nonverbal intelligence combined; the Stanford Achievement Test Advanced Level Forms (Kelley, Madden, Gardner & Rudman, 1964) was used to measure the achievement of the first intake of experimentals alone in language arts and social studies, and mathematics and science. These measures have been fully described in the Second Evaluation Report (Pp. 14-23).

4. Experimental Treatment

In the first and second evaluation reports the general principles of the Program were described and details of the major steps of execution within Language Arts, Science and Mathematics, and Music groupings of participants were outlined (Report No. 1, Pp. 15-24; Report No. 2, Pp. 24-27).

The Second Evaluation Report began by recapitulating the description of the general principles of the program and went on to describe some of the major refinements that were effected following the recommendations of the First Evaluation eport (Report No. 1, Pp. 63-66) and the second Summer Institute together with a summary of the major activities based on these principles that were carried out within the same three groupings of participants in the second year of the Project to serve as the experimental treatment in the second year of the Program (Report No, 2, Pp. 24-27).

The Program Model of the first year was developed for talented and gifted students between the ages of 10 and 12 years during a Summer Institute conducted in July, 1973 at the PACE Center by the Project Consultant with the assistance of the Director, the three Coordinators, and a group of Teachers who had been specially selected for the purpose, full details of which can be found in a Project unpublished report entitled "TAG With a Star" (Kellam, 1973). The superstructure of the Model was built upon the foundation of up-to-date conceptions of giftedness and creative potential, current practices in the nurture and guidance of the gifted with special focus given to Creative Problem Solving and Synectics techniques (Gordon, 1961; Osborn, 1963; Parnes, 1967ab), Research Techniques for children's use (Torrance & Myers, 1962), Creative Thinking Strategies (Khatena, 1970a, 1974a), and Creative Approaches to Learning incorporated as for example in the work of Renzulli (1973) and Williams (1971).

The Program began with a five week orientation for the experimental students to familiarize them with their new role and function in the Project that would demand they do much of the planning and organizing relative to this development. Experiences were provided for them to become aware of the need to learn in creative ways, to acquire research skills, to learn to use creative thinking and problem solving strategies, to know more about how to use the library and how to operate and care for audio-visual equipment and materials that were available at the Center, and to learn the need for making accurate decisions about themselves and their work.

On the basis of the findings and recommendations of the First Evaluation Report the refinements made to the Program at the Summer Institute in 1974 were implemented according to the Coordinators'

reports as follows:

(1) Special attention and emphasis was given by the Coordinators to the development of the four creative thinking abilities, namely, fluency, flexibility, originality and elaboration. This was accomplished through the hour on each Thursday devoted to problem solving and through such sessions as debate, public speaking, art of various types, music and topology.

(2) In the basic skills session of each Thursday meeting activities encouraging the development of creative thinking abilities which included exercise in restructuring and synthesis were organized.

(3) More substantial blocks of time were provided for program participants: the experimental group came once every other week for a full day session so that they could take part in activities relative to (1) and (2) above.

(4) Cooperative efforts in terms of group work was done relative to preparation and participation in the Arts and Science Festival and through sessions such as debate, chess, bicycle fair, speed arithmetic and chemistry.

(5) Students received reinforcement for their efforts through demonstrations, and performance during the Arts and Science Festival, through a trip to the state public speaking tournament, and by means of certificates. They were also allowed to keep things that they had made and were awarded small prizes or trophies in some sessions for their productions.

(6) Developing creative attitudes to learning was accomplished through use of films such as "Why Man Creates," through the problem solving sessions, and through the special and individual projects on Thursdays.

(7) More effective use of the library levelled at developing skilful use of the facilities and resources accomplished through research and writing sessions on Saturdays and Thursdays, through a trip to ERIC, through trips to Marshall University Library by students working on special projects, and through the use of the PACE Center library.

(8) Students were made aware of the different sources of knowledge and given experiences in the use of the scientific method of inquiry through the different individual projects on Thursdays, the large group session of Thursday meetings, the research and writing sessions, and the mini sessions on Saturday.

(9) Students were encouraged to complete their projects with something to show for their efforts: this was accomplished through the Arts and Science Festival, the 8mm and videotape productions, the debate for the USOE meeting at the Gateway Inn, and other projects that had definite products as their outcomes.

(10) Children were taken to various places of interest in connection with their projects. Some of these places were the state public speaking contest, Ritter Park, Huntington Galleries, Blue Barn Boarding Kennel, Chess Tournament, Cabell County Courthouse, ERIC at Marshall University, a Theatre in West Virginia, videotaping at WSAZ, and the biology, chemistry, physics, electronics, and computer facilities of Marshall University.

(11) Sixty-three mini-sessions were offered in the three terms of four Saturdays each.

(12) Leadership experiences were provided through sessions on sensitivity and leadership, drama productions, creative dramatics, debating teams, movie-making, and laboratory groups.

(13) Lists were prepared of all sessions attended by a child and of his total number of hours devoted to TAG activities.

(14) Student appraisal of two activities were encouraged: children attended a concert, a play, and taping of Theatre West Virginia and were requested to write suggestions for future experiences in this area.

(15) Giving of awards for achievement and production, as for instance special recognition for being selected to take part in a debate held for the USOE meeting. and for work in mini-sessions, became a part of the program variable.

On the basis of the findings and recommendations of the Second Evaluation Report, refinements were made to the Program mainly by the Coordinators with some help of Resource People attending a one day Summer Workshop in 1975, and implemented by them details of which can be found in the Coordinators' Report (Pp. 55-77) of this evaluation.

Briefly, the recommendations of the second evaluation which led to refinements for the program of the final year of the experiment included the preparation of Resource People for its more effective implementation, the exposure of experimentals to more deliberate eperiences levelled at developing their creative thinking and creative problem solving abilities, the provision of independent study, mini-courses at higher levels than those of the second year's program to accelerate achievement in the content areas especially relating to language arts, mathematics, science art and music, incentives by way of book awards and certificates of merit, the emphases on creating products an an index of learning and achievement, the encouragement to use research strategies in the acquisition of knowledge, the continued use of library facilities, the sharing of products to some extent among experimentals and with their parents, and the provision of opportunities for leadership experiences.

Experimentals of the second student intake received the earlier Program experiences of the first intake of students, while the first intake of experimentals forged ahead with the further refined Program. In addition, the first intake of experimentals met for activities on alternate Wednesdays and each Saturday over two terms of 4 weeks each, while the second student intake met for 5 half-day Saturday sessions for the year. The control group of the first intake received only one day of activities in the Program which included exposure to creative problem solving steps, games in logic and listening to films and the like.

5. Statistics

Raw scores for all measures were transformed to standard scores: stanines were used for the Torrance Tests of Creative Thinking, Thinking Creatively with Sounds and Words, Standard Progressive Matrices, the California Test of Mental Maturity, and the Stanford Achievement Test. Further, standard score means and standard deviations were calculated and the significance of differences were tested as follows with the level of significance set at .05.

(a) First Intake of Experimentals and Controls

For the Standard Progressive Matries, California Test of Mental Maturity, the Torrance Test of Creative Thinking and Thinking Creatively with Sounds and Words, a 3-Factor Mixed Design--Repeated Measures on One Factor Analysis of Variance Design (Bruning & Kinz, 1968) was used to control the effects of four repetitions of measurement so that main effects of training, and age, and interaction effects of training x age relative to each of the abilities measured could be determined. The same statistical design was also used for the Stanford Achievement Test to derive similar information.

(b) Second Intake of Experimentals

For the Standard Progressive Matrices, California Test of Mental Maturity, the Torrance Tests of Creative Thinking and Thinking Creatively with Sounds and Words, a simple Analysis of Covariance was used (Bruning & Kinz, 1968) to control for the effects of pretesting upon criterion posttest scores so that main effects of training could be determined.

RESULTS AND DISCUSSION

Two sets of data were obtained from participants of the Project relative to the two intake of students and designs used, namely, the first intake of experimentals and controls aged 10, 11 and 12 years or described as Groups 1, 2 and 3, and the second intake of experimentals aged 8, 9, 10, 14 and 15 years described as Groups 4, 5, 6, 7 and 8 respectively.

1. The First Student Intake (Groups 1, 2 and 3)

(a) Repeated test data obtained on the Torrance Tests of Creative Thinking Figural Forms and Thinking Creatively with Sounds and Words from students of Groups 1, 2 and 3 (aged 10, 11 and 12 years at the first of the four administrations of the measures) in the experimental and control groups were analysed and mean stanines and standard deviations for figural fluency, flexibility, originality and elaboration, and verbal originality were computed and are presented in Table 1. Further, a 3-Factor Mixed Design--Repeated Measures on One Factor Analysis of Variance (Bruning & Kintz, 1968) was used to test the significance of main effects of training, age and interaction effects of training x age while controlling for the effects of repeated testing relative to the creative thinking abilities described.

Differences in mean stanines for fluency and flexibility as measured by the Torrance Tests of Creative Thinking (Figural Forms) generally favor the control group. There is some small fluctuations in variance. An analysis of variance of these differences showed significant main effects of training for the controls and not for the experimentals both for fluency ($F = 4.74$, $df = 1/88$, $p < .05$) and flexibility ($F = 4.70$, $df = 1/87$, $p < .05$) with no significant main effects of age, testing and interaction effects of training x age, training x testing, testing x age, and training x age x testing. Some small fluctuations in both mean stanines and

standard deviations on originality and elaboration as measured by the same measure for experimentals and controls are present. However, an analysis of variance of the data showed no significant main effects or interaction effects for these two abilities relative to training, age and testing.

Verbal originality mean stanines and standard deviations on both Sounds and Images and Onomatopoeia and Images, the two components of Thinking Creatively with Sounds and Words, show some small fluctuations for experimentals and controls, but no significant main effects or interaction effects for this ability were found relative to training, age and testing.

The analysis of the data on these three measures indicate that the repeated testing did not significantly affect the results, that age was not a significant factor, and that somehow the creative components of the experimental program did not show significant gains in favor of the experimentals on any of the four abilities, and in fact seemed to have an inverse effect on figural fluency and flexibility for experimentals.

(b) Repeated test data were also obtained on the Standard Progressive Matrices, California Test of Mental Maturity and Stanford Achievement Test from students of Groups 1, 2 and 3 (aged 10, 11 and 12 at the first of three administrations of the measures), and analysed. Mean stanines and standard deviations for nonverbal intelligence, verbal intelligence and achievement in Language Arts/Social Studies, Mathematics/Science and on the Total Scale were computed and presented in Table 2. Further, a 3-Factor Mixed Design--Repeated Measures on One Factor Analysis of Variance (Bruning & Kinz, 1968) was used to test the significance of

training, age and interaction effects of training x age while controlling for the effects of repeated testing relative to nonverbal intelligence, verbal intelligence and achievement described.

On nonvebral intelligence as measured by the Standard Progressive Matrices, mean stanines and standard deviations show some small fluctuations but no significant main or interactions effects were found relative to training, age and testing.

On verbal intelligence as measured by the California Test of Mental Maturity, mean stanine differences generally favored experimentals of Group 1 and 2 but not 3, with small fluctuations in the variance evident. An analysis of variance of this data showed only significant interaction effects of training x age ($\underline{F} = 4.42$, $\underline{df} = 2/93$, $p < .05$).

For achievement as measured by the Stanford Achievement Test, fluctuations in mean stanines and the variance are present. An analysis of variance of the data showed no significant main and interaction effects in Mathematics/Science and the Total Scale. In Language Arts/Social Studies no significant main effects were found; and the only significant interaction effects were found for training x age x testing.

Generally the analysis of the data on these three measures indicate no clear improvement occurring for these groups of experimentals as a result of exposure to the experimental program, that age was not a significant factor except as seen to some extent in the interaction effects of training x age on verbal intelligence, and that testing was not a significant factor except as seen in the interaction effects of training x age x testing on achievement.

TABLE 1

REPEATED TEST STANINE MEANS AND STANDARD DEVIATIONS ON TTCT AND TCSW BY EXPERIMENTALS AND CONTROLS GROUPS 1 TO 3

Measures		Group 1				Group 2				Group 3			
		T 1	T 2	T 3	T 4	T 1	T 2	T 3	T 4	T 1	T 2	T 3	T 4
EXPERIMENTALS													
TTCT (Figural)	N	14				22				19			
Fluency	M	5.00	5.21	4.86	4.64	4.59	4.68	4.59	4.64	4.74	5.21	5.00	4.11
	SD	2.15	1.81	2.07	1.50	1.84	2.03	1.79	1.87	2.02	1.81	2.08	1.66
	N	14				22				19			
Flexibility	M	5.43	4.57	5.36	4.79	4.45	4.77	4.64	4.55	4.68	5.00	4.89	4.26
	SD	1.65	1.28	1.98	1.42	1.57	2.31	1.94	1.65	2.21	2.19	2.16	1.48
	N	14				22				19			
Originality	M	5.64	5.29	5.14	5.14	5.00	4.95	4.95	5.05	4.84	4.74	5.21	5.26
	SD	1.82	1.82	2.25	1.56	1.54	1.81	1.56	1.91	1.95	1.88	2.02	2.26
	N	14				22				19			
Elaboration	M	5.64	5.36	5.07	5.00	4.59	4.77	4.73	4.82	5.21	5.21	4.89	4.47
	SD	1.78	1.65	1.59	1.75	2.04	2.00	2.03	1.79	2.18	2.02	2.18	1.84
TCSW (Verbal)	N	13				21				19			
Originality(SI)	M	4.85	5.46	5.77	4.31	4.86	4.95	4.76	5.43	5.26	5.00	5.21	5.42
	SD	1.41	1.51	1.83	1.65	1.96	1.88	1.81	1.99	2.00	1.70	2.35	1.80
	N	13				21				19			
Originality(OI)	M	5.46	6.15	5.23	5.31	5.38	5.00	4.95	4.90	5.05	5.21	5.00	4.79
	SD	2.07	1.77	2.09	1.84	1.60	1.87	2.06	1.87	2.09	2.18	1.94	2.20
CONTROLS													
TTCT (Figural)	N	15				16				8			
Fluency	M	4.80	5.33	4.67	5.40	5.63	5.56	5.38	5.63	5.50	5.25	5.25	6.88
	SD	2.37	2.66	1.59	2.26	1.82	1.55	1.86	1.93	1.69	2.31	1.83	1.55
Flexibility	N	14				16				8			
	M	4.79	5.29	5.00	5.31	5.69	5.19	5.50	5.56	5.63	4.75	5.13	7.00
	SD	2.15	2.34	1.96	2.13	2.18	1.64	1.97	1.86	1.41	1.67	1.89	1.51
Originality	N	15				16				7			
	M	4.47	4.73	4.87	4.93	5.19	5.00	5.13	5.00	5.86	5.14	5.00	4.43
	SD	2.07	2.02	1.68	2.05	2.43	2.03	2.19	2.00	1.57	1.77	1.73	0.98

Elaboration	N	15				16				8			
	M	4.53	4.47	5.00	4.73	5.56	5.31	5.44	5.38	4.50	4.13	4.50	6.00
	SD	2.07	2.23	2.24	2.19	1.67	1.82	1.67	2.03	1.41	1.55	1.41	1.51
TCSW (Verbal)													
Originality(SI)	N	16				15				7			
	M	5.00	4.56	4.31	5.38	5.20	5.13	5.27	4.53	4.57	5.14	4.71	4.00
	SD	2.58	2.13	1.99	1.78	2.04	1.77	2.02	1.85	2.07	2.41	0.49	1.73
Originality(OI)	N	16				15				7			
	M	4.69	4.25	4.63	4.56	4.80	5.07	5.07	4.93	5.43	4.71	4.71	5.57
	SD	1.78	1.81	1.67	1.75	2.37	1.94	1.87	2.15	2.15	1.50	1.98	1.27

TABLE 2

REPEATED TEST STANINE MEANS AND STANDARD DEVIATIONS ON SPM, CTMM AND SAT BY EXPERIMENTALS AND CONTROLS GROUPS 1 TO 3

Measures		Experimentals									Controls								
		Group 1			Group 2			Group 3			Group 1			Group 2			Group 3		
		T 1	T 2	T 3	T 1	T 2	T 3	T 1	T 2	T 3	T 1	T 2	T 3	T 1	T 2	T 3	T 1	T 2	T 3
SPM	N	15			22			19			16			17			10		
	M	5.20	5.27	5.80	4.59	4.55	4.64	5.32	4.95	4.79	5.06	4.56	4.75	5.47	5.47	5.41	4.90	5.30	5.30
	SD	1.90	1.87	1.74	1.92	2.06	1.84	1.70	1.93	2.21	1.81	1.82	1.98	1.94	2.07	1.77	2.38	2.31	2.06
CTMM	N	13			21			19			16			19			11		
(Short Form)	M	5.61	5.85	5.92	5.10	5.10	4.62	4.63	4.53	5.00	4.56	4.19	4.31	4.89	5.21	5.47	5.64	5.73	5.09
	SD	1.45	1.72	1.98	2.05	2.21	1.69	1.77	2.01	1.94	2.25	1.83	1.74	1.66	1.69	1.87	2.20	1.85	1.70
SAT:																			
Language Arts	N	13			20			18			13			14			8		
& Soc.Stud.	M	4.62	5.31	5.08	5.70	5.10	4.65	5.06	4.89	4.94	5.25	4.54	4.92	4.29	5.29	5.14	4.88	5.38	5.00
	SD	1.76	1.70	1.61	1.66	1.89	1.73	1.89	2.00	1.95	2.20	2.15	2.40	1.90	1.86	2.51	2.36	2.26	2.20
Mathematics	N	13			20			18			13			14			8		
& Science	M	5.08	5.23	5.23	5.38	4.90	4.81	5.17	5.11	5.39	5.08	4.69	4.77	4.29	5.14	5.24	4.38	5.00	4.38
	SD	1.80	1.69	1.59	1.24	2.00	1.94	2.04	2.08	2.09	2.10	2.29	2.39	2.43	1.96	2.02	1.77	1.93	2.13
Total Scale	N	13			20			18			13			14			8		
	M	4.85	5.26	5.15	5.54	5.00	4.73	5.11	5.00	5.17	5.15	4.62	4.85	4.29	5.22	5.21	4.63	5.19	4.69
	SD	1.76	1.66	1.57	1.45	1.92	1.82	1.94	2.01	2.01	2.11	2.17	2.34	2.14	1.87	2.23	2.03	2.04	2.12

SPM = Standard Progressive Matrices
CTMM = California Test of Mental Maturity
SAT = Stanford Achievement Test

2. The Second Student Intake (Groups 4, 5, 6, 7 and 8)

(a) Pretest and posttest data were obtained on the Figural Forms of the Torrance Tests of Creative Thinking and Thinking Creatively with Sounds and Words from students of five age groups in the second intake referred to earlier as Groups 4, 5, 6, 7 and 8 (aged 8, 9, 10, 14 and 15 years at the first administration of the measures respectively). Mean stanines and standard deviations for figural fluency, flexibility, originality and elaboration were computed and presented in Table 3. Further, an analysis of covariance was used to test the significance of main effects of the experimental Program on students of the five age levels while controlling for the effects of pretesting relative to each of the four creative thinking abilities (TTCT) and verbal originality (TCSW). The evidence derived and presented in Table 3 showed no significant main effects of the Program on students at the five age levels as measured by the Torrance Tests of Creative Thinking (figural fluency, flexibility originality and elaboration) and Thinking Creatively with Sounds and Words (verbal originality--Onomatopoeia and Images & Sounds and Images).

(b) Similar pretest and posttest data were generated from the Standard Progressive Matrices and the California Test of Mental Maturity (Short Form) for these five groups of experimentals, and mean stanines and standard deviations for nonverbal and verbal intelligence were found and presented in Table 4 . Further, an analysis of covariance was used to test the main effects of the experimental Program on students of the five age levels while controlling for the effects for pretesting relative to these two abilities. Except for the drop in stanine mean

for Group 5 from M = 5.04 to M = 4.87, and none for Group 6 (M = 5.00), the remaining three groups showed some improvement in nonverbal intelligence as measured by the Standard Progressive Matrices, and this was found to be significant ($F = 4.84$, df = 4.99, $p < .01$). Although some fluctuations in mean stanines were present, significant differences were not found for these five age groups on the California Test of Mental Maturity.

Of the many variables that may have hindered the validation of the positive effects of the experimental program the most important were certain aspects of the experimental design, differential exposure to the experimental program, untrained resource personnel, loss of experimental subjects, school learning interferences, and several other variables relative to teacher attitude, restrictions and negative reinforcement, competing and conflicting non Project activities, and the motivation of gifted students generally towards high levels of achievement.

1. Design.

Details of the design chosen for Experimental Groups 4, 5, 6, 7 and 8, and the modification that followed are given on P. 13. The experimental findings of these five groups must at best be tentative; apart from the lack of control of most of the internal validity threats (contemporary history, maturation, pretesting procedures, measuring instruments and statistical regression), the great loss of experimental subjects adds forceably to the invalidation of the experimental findings.

2. Differential Exposure to Experimental Program.

The number of participation hours for each experimental of Groups 1, 2 and 3 ranged from 10 to 130 hours with M = 67.60 hours and SD = 48.73. The recommended participation hours numbered 50 to 60 hours for each

TABLE 3

PRETEST AND POSTTEST STANINE MEANS AND STANDARD DEVIATIONS ON TTCT AND TCSW OF EXPERIMENTALS GROUPS 4 TO 8

Measure	Test	Experimentals										F	df	p
		Group 4		Group 5		Group 6		Group 7		Group 8				
		M	SD	M	SD	M	SD	M	SD	M	SD			
TTCT (Figural)		(N=24)		(N=23)		(N=23)		(N=15)		(N=19)				
Fluency	T1	5.04	2.05	4.87	2.01	4.91	2.00	4.73	2.19	5.11	2.02	0.15	4/98	ns
	T2	5.00	1.89	4.91	1.95	4.96	1.99	4.80	2.14	5.26	1.48			
Flexibility	T1	5.25	2.03	5.00	1.83	4.87	1.96	4.87	2.07	5.16	1.86	0.98	4/98	ns
	T2	5.08	2.00	5.09	1.88	5.04	1.94	4.53	2.02	5.79	1.51			
Originality	T1	5.00	2.09	5.00	2.00	4.96	2.01	5.27	1.67	4.79	2.23	1.11	4/98	ns
	T2	4.96	2.16	5.00	2.04	5.04	2.08	4.13	1.53	5.47	1.98			
Elaboration	T1	5.04	2.07	4.96	2.03	5.04	2.03	4.60	1.57	5.26	1.88	0.29	4/98	ns
	T2	5.00	2.09	5.00	2.04	5.04	1.99	5.47	1.38	4.74	1.97			
TCSW (Verbal)		(N=25)		(N=23)		(N=23)		(N=15)		(N=19)				
Originality (SI)	T1	5.00	1.98	5.04	2.03	5.00	1.88	4.27	1.22	5.26	0.96	0.12	4/99	ns
	T2	5.04	2.21	4.87	1.94	5.00	1.98	4.40	1.88	5.74	1.10			
Originality (OI)	T1	5.16	2.01	5.00	2.04	4.91	1.83	3.87	1.81	5.84	1.61	0.26	4/99	ns
	T2	4.96	1.95	4.91	2.02	4.91	2.07	4.27	2.05	5.68	1.63			

TABLE 4

PRETEST AND POSTTEST STANINE MEANS AND STANDARD DEVIATIONS ON SPM AND CTMM OF EXPERIMENTALS GROUPS 4 TO 8

Measures	Test	Experimentals										F	df	p
		Group 4 N=25		Group 5 N=23		Group 6 N=23		Group 7 N=15		Group 8 N=19				
		M	SD	M	SD	M	SD	M	SD	M	SD			
Standard Progressive Matrices	T1	5.00	1.98	5.04	2.03	5.00	1.88	4.27	1.22	5.26	0.96	4.84	4/99	.01
	T2	5.04	2.21	4.87	1.94	5.00	1.98	4.40	1.88	5.74	1.10	1.11		
California Test of Mental Maturity	T1	5.16	2,01	5.04	2.04	4.91	1.83	3.87	1.81	5.84	1.61	1.11	4/99	ns
	T2	4.96	1.95	4.91	2.02	4.91	2.07	4.27	2.05	5.68	1.63			

student and although on the average participation reached 67.60 hours, considerable variability in participation hours was present. This differential exposure to the experimental program (noted in the earlier phases of the Project and continuing into the final phases of the Project) must have biased the results obtained. The same irregular attendance pattern was present for Groups 4, 5, 6, 7 and 8 and must have biased the results as well.

3. Untrained Resource Personnel

Although some attempt was made to orient in a 2-day workshop Resource Personnel to the objectives of the Project and the experimental program only a part of this force received the orientation, and over too short a period for it to be effective. Resource Personal variability can also be considered a threat to the validity of the experiment.

4. Loss of Experimental Subjects

The loss of experimentals can be considered the most significant threat to the internal validity of the experimental. While the experimental design for Groups 1, 2 and 3 included control of the threat of experimental mortality or loss of subjects, the loss was to acute to be compensated by design control. The experimental mortality problem most surely affect the results of Groups 4, 5, 6, 7 and 8, not only because of its acute nature but also because of the weakness of the design generally. Details of these discrepancies can be found described in the sections on design and subjects (Pp. 12-16).

5. School Learning Interferences

Several schools of the Region with both experimentals and controls of the Project have formed gifted classes where teachers in touch with aspects of the experimental program have made use of these in the learning experiences they provide their students may yet be another

contaminating variable. To this interference must be added the naturally gifted teacher who would have provided learning experiences that are akin to the rationale of the experimental program..

6. Other Variables

A number of other variables that may have significantly interferred with the experiment relate to negative attitudes and consequent restrictions imposed upon many gifted experimentals by some of their teachers who lacked appropriate orientation to the goals of the Project. Student irregular and non attendance of Project activities discussed in 2 above can be traced in large measure to the insistance that learning and tests missed in school because of time spent on the Project could not be made up. Also the negative reinforcement of Project activities implied in such teacher behavior must have had carry over effect upon student performance in the experimental program. To this must be added competing and conflicting non Project activities and interests of these students that prevented full participation and adequate commitment to the experimental program. It must also be mentioned that genuinely gifted students are generally motivated towards high levels of achievement and this may be one of the significant factors affecting the findings of no significant main effects in achievement due to exposure to the experimental program between experimentals and controls.

In conclusion although much was attempted by the Project Staff to control for these extraneous variables in keeping with the recommendations of the First and Second Evaluation Reports (1974; 1975) adequate control for most of them just could not be achieved under the circumstances. Illustrative of variation in the achievement level in stanines of each Project participantof Groups 1, 2 and 3 on the several measures used has been graphed and presented as individual profile charts in Appendix 1, and should add appropriate dimension to the directions revealed by this analysis of group data.

PART 2 - STUDENT CREATIVE SELF PERCEPTIONS EVALUATED

The first evaluation report reviewed the merits of the autobiographical instrument as a screening device for identification of gifted people and selected Something About Myself as a measure of Creative Self Perceptions (Khatena, 1971ab, 1972, 1973, 1976) for use in the Project especially as a diagnostic tool for program development and refinement. Appraisals of student participants' creative perceptions were reported in the two evaluation reports as follows:

(1) The First Evaluation Report

Appraisal of the creative perceptions of the first intake of experimentals aged 10, 11, and 12 years by them and their parents, and of experimentals and controls of the same age groups by their parents was done in the First Evaluation Report.

The first analysis showed no significant differences between parent perceptions of their children and student perception of themselves on five of the six creative orientations. However, significant differences were found for Initiative and the Total Scale, which could mean that students tend to perceive themselves as having more Initiative and generally as being more creative than their parents perceive them. Further, analysis of the relative strengths of the six orientations indicated that experimentals ordered from highest to lowest their creative orientations as Environmental Sensitivity, Intellectuality, Self Strength, Individuality, Artistry and Initiative, whereas parents' perceptions of the creative orientations of these experimentals ordered the six orientations from highest to lowest as Intellectuality, Environmental Sensitivity, Self Strength, Individuality, Artistry and Initiative. It was interesting to note that in either case Initiative was ranked lowest, and although parents tend to perceive their children as somewhat higher

on Intellectuality than the rest of the creative orientations, children tend to perceive themselves highest on Environmental Sensitivity.

The second analysis of the data found that none of the mean differences in the perceptions of the six creative orientations and the Total Scale by parents of the experimental and control groups were significant. Again, of interest is the comparison of the order of their perceptions of their children with reference to the six creative orientations: while parents of the experimental group ordered these orientations from highest to lowest as Intellectuality, Environmental Sensitivity, Self Strength, Individuality, Artistry and Initiative, parents ordered these orientations from highest to lowest as Environmental Sensitivity, Intellectuality, Self Strength, Individuality, Artistry and Initiative.

This evidence indicated that the creative orientations of Environmental Sensitivity and Intellectuality tend to be the greatest strengths of these gifted students while Initiative tends to be their greatest weakness, with Self Strength, Individuality and Artistry taking moderate positions in the scale of importance for them. The recommendation was then made to include planned experiences that would strengthen in particular the lacks relative to Initiative in terms of opportunity for students to direct or produce plays or skits, to take part in lead roles in dramatic or musical productions, to produce formulas, to make things, and even to practice the sensing of deficiencies in procedural patterns and organizations for the purpose of suggesting improvements, and other leadership roles that go beyond the screening instrument which was used. Further, it was recommended that another creative orientation could be strengthened, namely, Artistry, whereby gifted students could be involved in the production of objects, models, paintings, and carvings, creative

writing of stories, plays, poems and other literary pieces, which are inherent in the Project's activity areas, namely, Language Arts and Music and Art, and arranging for recognition of these efforts by way of exhibition and prizes.

(2) The Second Evaluation Report

The creative perceptions of the same group of experimentals and controls provided by them were appraised after further periods of exposure to the experimental program in the second year of the Project. Two analysis of these perceptions were done: (a) the creative perceptions of experimentals and controls derived in 1975 were compared, and (b) the creative perceptions of experimentals in 1974 and 1975 were compared.

The evidence of the first analysis comparing creative perceptions derived in 1975 of experimentals and controls of the second year of the Project seemed to have exerted significant influence on the creative self-perceptions of experimental participants in the areas of Self-Strength, and Individuality; and that although no significant differences were found on Initiative, experimentals did show some increase over the controls. The second analysis comparing the creative perceptions of experimentals over two points of time (1974 and 1975) found significant improvement for experimentals in five of the six orientations and on the total scale.

These findings led to the recommendations that further refinements of the program for the third year of the Project, especially in the areas of Initiative and Artistry were necessary.

Some careful diagnostic work relative to each individual to discover in which of the aspects of Initiative and Artistry the student shows weakness and to remedy these by planning some special activities to strengthen them was also recommended.

Further, it was suggested that a careful record be kept of the performance of each experimental on Initiative and Artistry and their item components.

(3) The Third Evaluation Report

PROCEDURES

Something About Myself (Khatena, 1970b) is a 50 item forced choice creativity checklist which is based upon the rationale that creative behavior is reflected in the personal characteristics of the individual, in the way he thinks, and in the products that emerge as a result of his creative strivings. It can be easily administered either in groups or individually. Those who take the test are instructed to read the items and respond by checking those items they perceive applicable to them with each positive response receiving 1 point and with possible scores ranging from 0 to 50 points. It generally takes between 10 to 15 minutes to complete the checklist though in some cases the time taken may be longer.

The construction, reliability, validity and other relevant data of this measure have been reported elsewhere (Khatena, 1971a, 1972). Further, the measure as has been described earlier in this report provides six creative orientations,namely, Environmental Sensitivity, Initiative, Self Strength, Intellectuality, Individuality, and Artistry determined by factor analysis (Bledsoe & Khatena, 1973).

Descriptive details of each of these factor orientations are as follows:

If a person is Environmentally Sensitive he is one who is open to the ideas of others, relates ideas to what can be seen touched or heard, is interested in the beautiful and humorous aspects of experiences, and has sensitivity to meaningful relations.

If a person is high on Initiative he is one who directs, produces and/or plays lead roles on dramatic and musical productions, produces new formulas or products, and brings about changes in procedures

or organization.

If a person shows high on Intellectuality he is one who has intellectual curiosity, who enjoys challenging tasks, who has imagination, has preference for adventure over routine, who likes reconstructing things and ideas to form something different, and who dislikes doing things in a prescribed and routine way.

If a person has Individuality he is one who prefers to work alone rather than in a group, sees himself as a self-starter, is eccentric, is critical of others, thinks for himself, and works for long periods without getting tired.

If a person has Artistry he is one who produces objects, models, paintings and carvings, who composes music, who has been awarded prizes or has had his works exhibited, and who has produced stories, plays, poems and other literary pieces.

In the third evaluation of creative self-perceptions of Project experimentals aged 10, 11 and 12 years (Groups 1, 2 and 3) combined, and 14-15 years (Groups 7 and 8) combined were administered Something About Myself and responded to the measure themselves. As was done in the second evaluation, raw scores obtained were then transformed to standard scores with Mean=10 and Standard Deviation=2 by reference to the Conversion Tables of the Norms Technical Manual based on a norm population that included various related groups of West Virginians (Khatena, 1970 b). Mean standard scores and standard deviations were computed relative to the six factor orientations and total scale for all five age groups and presented in Tables

Only 54 experimentals and 61 controls out of the original 90 in each group of the first intake took the measure in 1976 and provided the data for the first analysis of relative progress on the scale. Of the 54

experimentals, only 41 had taken the measure in 1974, 1975 and 1976, and provided data for the second analysis of the relative progress of experimentals on the scale. In view of the considerable decrease in subjects the age categories were collapsed to give only one group of experimentals and one group of controls for the first analysis, and only one group of experimentals for the second analysis. A third analysis was provided by 35 of the 60 experimentals of the second intake of Project participants aged 14 and 15 years, and for the same reason, the age categories of these two groups were collapsed to give one group of experimentals.

Analysis No. 1 and 2

Standard score means and standard deviations of the creative perceptions of experimentals and controls have been presented in Table 5. Generally, some increase appears to have taken place on the creative orientations for both experimentals and controls. with some small decline occurring for experimentals on Environmental Sensitivity and for controls on the Creative Index as measured by the total scale for these combinations of subjects drawn from the total group. An Analysis of Covariance (Bruning & Kintz, 1968) was used to test the significance of the main effects of exposure to the experimental Program while controlling for the effects of pretesting. However, no significant differences were found either on the total scale or on each of the six creative orientations.

Standard score means and standard deviations of experimentals alone of the first student intake on Something About Myself administered in 1974, 1975 and 1976 are presented in Table 6. The Repeated Measures Design (Bruning & Kinz, 1968) was used to test the significance of main effects of the experimental program while controlling for the effects of repeated testing. Significant main effects of the program

were found for all six Creative Orientations and the Total Scale ($p < .01$). The only significant effects for repeated testing as wellIwere found for Environmental Sensitivity ($F = 3.64$, $df = 2/80$, $p < .05$) and for the Total Scale (F 5.79, $df = 2/80$, $p < .01$). In the Second Evaluation Report it was found that whereas improvement was shown in five of the six creative orientations and the Total Scale, improvement was not shown in Artistry. The evidence of this third report shows significant improvement in Artistry as well.

Analysis No. 3

Standard score means and standard deviations of the creative perceptions of experimentals of the 14 and 15 year old groups of the second student intake combined have been presented in Table 7. A t-test of Related Measures (Bruning & Kinz, 1968) found significant improvement only in Intellectuality ($t = 3.84$, $df = 34$, $p < .01$) and the Total Scale ($t = 2.64$, $df = 34$, $p < .05$).

In summary, the evidence of the first analysis suggests that forces outside the program of the project as well as experimental mortality may have had much to do with contaminating the results. The second and third analyses do provide some support of the positive effects of the Program though the absence of a comparison control group in either case indicates the need for caution in interpreting the results. In addition the observations concerning the confounding effects of extraneous variables to the experimental program on Pp. 29-31 must be noted.

TABLE 5

STANDARD SCORE MEANS AND STANDARD DEVIATIONS OF CREATIVE SELF PERCEPTIONS OF EXPERIMENTALS AND CONTROLS GROUPS ONE, TWO AND THREE COMBINED ON SOMETHING ABOUT MYSELF IN 1975 AND 1976

Something About Myself	Experimental (N=54)				Control (N=61)				F (df=1/112)	P
	1975		1976		1975		1976			
	M	SD	M	SD	M	SD	M	SD		
Environmental Sensitivity	10.69	1.53	10.44	1.76	10.44	1.66	10.57	1.58	0.18	ns
Initiative	11.02	3.05	11.98	3.48	9.46	4.91	10.95	4.54	1.81	ns
Self Strength	11.57	1.42	11.74	1.62	11.33	1.25	11.80	1.33	0.07	ns
Intellectuality	11.00	1.32	11.33	1.41	10.90	1.16	11.02	1.61	1.24	ns
Individuality	10.93	1.76	11.13	1.87	9.95	1.93	10.80	0.73	0.73	ns
Artistry	11.46	1.88	11.96	1.66	11.02	2.45	11.41	2.38	1.92	ns
Creative Index (Total Scale)	11.19	1.57	11.98	1.72	10.85	1.38	11.48	1.82	2.31	ns

TABLE 6

STANDARD SCORE MEANS AND STANDARD DEVIATIONS OF CREATIVE SELF PERCEPTIONS OF EXPERIMENTALS GROUPS ONE, TWO AND THREE COMBINED ON SOMETHING ABOUT MYSELF IN 1975 AND 1976

Something About Myself	Experimental (N=41)						F	df	p
	1974		1975		1976				
	M	SD	M	SD	M	SD			
Environmental Sensitivity	9.90	2.00	10.63	1.50	10.56	1.45	2.55	40/80	<.01
Initiative	11.00	3.63	10.88	3.15	11.71	3.76	2.47	40/80	<.01
Self Strength	11.56	1.16	11.54	1.47	11.83	1.38	3.10	40/80	<.01
Intellectuality	10.98	1.41	11.07	1.29	11.27	1.43	2.25	40/80	<.01
Individuality	10.49	1.72	11.02	1.86	11.10	1.84	2.27	40/80	<.01
Artistry	11.37	1.96	11.22	1.94	11.71	1.71	3.95	40/80	<.01
Creative Index (Total Scale)	11.12	1.81	11.02	1.39	11.90	1.53	2.59	40/80	<.01

TABLE 7

STANDARD SCORE MEANS AND STANDARD DEVIATIONS OF CREATIVE SELF PERCEPTIONS OF EXPERIMENTALS GROUPS SEVEN AND EIGHT COMBINED ON SOMETHING ABOUT MYSELF IN 1975 AND 1976

Something About Myself	Experimental (N=35)				F	p
	1975		1976			
	M	SD	M	SD		
Environmental Sensitivity	10.71	1.56	11.23	1.26	1.77	ns
Initiative	9.23	4.61	10.43	3.35	1.71	ns
Self Strength	11,77	1.46	11.80	1.38	0.13	ns
Intellectuality	10.46	1.44	11.40	1.38	3.84	$<.01$
Individuality	10.43	1.72	10.89	1.79	1.11	ns
Artistry	11.20	2.59	11.80	1.97	1.24	ns
Creative Index (Total Scale)	11.03	1.42	11.69	1.41	2.64	$<.05$

PART 3: OTHER SOURCES OF PROJECT EVALUATION

Additional data for the appraisal of the Project were generated by reports prepared by Student and Parent, Resource People, Project Coordinators and Director.

STUDENT AND PARENT EVALUATION

1. Student Evaluation

Student perception of their growth relative to exposure to the third year Program was derived from their responses to a 20 item checklist entitled Observation Inventory (Appendix 2). The inventory called for information regarding the effects of participation in the Program relative to motivation, study habits, school grades, hobbies, interests, projects, ability to solve problems and to think of many solutions to them, decision making, reasoning skills, special talents, library skills, social skills, self-concept, self-confidence, speaking and performing before a group, coping with personal problems and leadership ability.

Only 36 returns were available. Answers could be Yes, Unsure and No. Frequencies and percentages of student responses to each of the 20 questions are presented in Table 8. This evidence was tested for significance by use of x^2 and the probability level was set at .05.

It is interesting to note that the greatest growth perceived by students are in increased interest in hobbies (86.11%), a wider range of interests (86.11%), increased ability to come up with many possible solutions to problems before making decisions (72.22%), increased self-confidence (63.89) and improvement of reasoning skills (61.11%). With the exception of the first two of these five items, many students expressed uncertainty about their development on the total scale (ranging from 22.22% to 46.67%). The least amount of growth seems to have occurred for increased ability to get along with teachers (52.78) and

TABLE 8

RESPONSE FREQUENCIES AND PERCENTAGES TO STUDENT OR PARENT OBSERVATION INVENTORY AND CHI-SQUARE INDICES OF EXPERIMENTALS GROUPS 1 TO 3

Item	f (N=36)			%			χ^2		
	Y	UN	N	Y	UN	N	x	df	p
Increased motivation toward learning	19	14	3	52.78	38.89	8.33	56.20	1	<.01
Improvement in study habits.	16	12	8	44.44	33.33	22.22	41.87	2	<.01
Improvement in school grades	14	8	14	38.89	22.22	38.89	41.60	2	<.01
Increased interest in hobbies	31	1	4	86.11	2.78	11.11	47.72	1	<.01
A wider range of interests	31	4	1	86.11	11.11	2.78	47.72	1	<.01
Increased ability to carry out projects to completion	19	8	7	52.78	22.22	19.44	46.13	2	<.01
Increased ability to find solutions to problems	20	13	3	55.56	36.11	8.33	41.12	1	<.01
Increased ability to come up with many possible solutions to problems before making decisions	26	8	2	72.22	22.22	5.56	43.52	1	<.01
Increased ability to make good decisions regarding course of action to be taken to solve a problem	19	11	6	52.78	30.56	16.67	43.35	2	<.01
Improvement of reasoning skills	22	11	3	61.11	30.56	8.33	41.60	1	<.01
Greater originality in creative work	19	12	5	52.78	33.33	13.89	43.81	2	<.01
Development of special talents	19	12	5	52.78	33.33	13.89	43.81	2	<.01
Improvement in library skills	11	15	10	30.56	41.67	27.78	41.29	2	<.01
Increased ability to get along with peers	13	14	9	36.11	38.89	25.00	41.30	2	<.01
Increased ability to get along with teachers	6	11	19	16.67	46.67	52.78	43.45	2	<.01
Improvement in self-concept	16	16	4	44.44	44.44	11.11	41.12	1	<.01
Increased self-confidence	23	10	3	63.89	27.78	8.33	41.96	1	<.01
Increased ability to perform and speak before a group	13	12	11	36.11	33.33	30.56	40.92	2	<.01
Greater skill in coping with personal problems	15	10	11	41.67	27.78	30.56	42.66	2	<.01
Development of leadership ability	15	14	7	41.67	38.89	19.44	42.02	2	<.01

Y = Yes UN = Unsure N = No

improvement of school grades (38.89%). All evidence in Table 8 was found to be significant ($p < .01$).

2. Parent Evaluation

Parent perception of their children's growth relative to exposure to the third year Program was also derived from their responses to the Observation Inventory. Only 36 returns were available. Answers to the same three response categories. Yes, Unsure and No were analysed and frequencies and percentages of responses to each of the 20 questions are presented in Table 9. The x^2 was used to test the significance of the evidence with the probability level set at .05.

It is of interest to note that the greatest growth perceived by parents of their children are a wider range of interests (86.11%), greater originality in creative work (77.78%), increased motivation towards learning (75.00%), increased ability to find solutions to problems (75.00%), improvement of reasoning skills (72.00%), improvement in library skills (72.00%) increased interest in hobbies (69.44%) and increased self-confidence (69.44). Many parents expressed uncertainty about the development of their children on the scale ranging from 8.33% to 47.22%). The least amount of growth seems to have occurred for improvement of school grades (44.44%), increased ability to get along with peers (30.56%), and increased ability to get along with teachers (30.56%).

Common to both student and parent perceptions of greatest growth of students in the Project are a wider range of interests, and of reasoning skills; and of least growth are improvement of school grades and increased ability to get along with teachers.

Singular parent comments relative to some of the 20 items are presented as follows: motivation was already high since the child was striving to make the honor society; the Program may not have been responsible for

TABLE 9

RESPONSE FREQUENCIES AND PERCENTAGES TO STUDENT OR PARENT OBSERVATION INVENTORY AND CHI-SQUARE INDICES OF PARENTS OF EXPERIMENTALS GROUPS 1 TO 3

Item	f (N=36)			%			χ^2		
	Y	UN	N	Y	UN	N	x	df	p
Increased motivation toward learning	27	5	4	75.00	13.89	11.11	44.20	1	<.01
Improvement in study habits	12	14	10	33.33	38.89	27.78	41.11	2	<.01
Improvement in school grades	13	7	16	36.00	19.44	44.44	42.14	2	<.01
Increased interest in hobbies	25	7	4	69.44	19.44	11.11	42.92	1	<.01
A wider range of interests	31	3	2	86.11	8.33	5.56	47.72	1	<.01
Increased ability to carry out projects to completion	25	5	6	36.00	13.89	16.67	48.50	2	<.01
Increased ability to find solutions to problems	27	7	2	75.00	19.44	5.56	44.20	1	<.01
Increased ability to come up with many possible solutions to problems before making decisions	18	14	2	50.00	38.89	5.56	43.60	1	<.01
Increased ability to make good decisions regarding course of action to be taken to solve a problem	21	12	3	58.33	33.33	8.33	41.32	1	<.01
Improvement of reasoning skills	26	7	3	72.22	19.44	8.33	43.52	1	<.01
Greater originality in creative work	28	6	2	77.78	16.67	5.56	44.96	1	<.01
Development of special talents	23	8	5	63.89	22.22	13.89	46.46	2	<.01
Improvement in library skills	26	7	3	72.22	19.44	8.33	43.52	1	<.01
Increased ability to get along with peers	12	13	11	33.33	36.00	30.56	40.93	2	<.01
Increased ability to get along with teachers	12	13	11	33.33	36.00	30.56	40.93	2	<.01
Improvement in self-concept	24	10	2	66.67	27.77	5.55	42.92	1	<.01
Increased self-confidence	25	10	1	69.44	27.77	2.78	42.40	1	<.01
Increased ability to perform and speak before a group	21	9	6	58.33	25.00	16.67	44.65	2	<.01
Greater skill in coping with personal problems	13	17	6	36.11	47.22	16.66	41.00	1	<.01
Development of leadership ability	19	14	3	52.78	38.89	8.33	42.74	2	<.01

Y = Yes UN = Unsure N = No

improvement in study habits since the child was in any case a diligent student; several consider that their children work for A grades anyway; three stated that their children have always had many hobbies; and the short range multi-subject approach of the Program tends to discourage follow through work.

Generally the responses were positive and complimentary and the Project was regarded as having made a great impact on students attending the Program.

EVALUATION BY RESOURCE PEOPLE

Resource People were guided in their reporting by a questionnaire prepared for the purpose. The questionnaire consisted of 8 questions which asked for a description of the kind of work done with the students, the amount of meeting time to do this work, brief comments on student reaction to this work, achievement or talent growth that may have followed, the adequacy of materials and equipment provided by the Project to do this work, the extent to which Resource People found their role and function as facilitator satisfying, other observations, and recommendations (Appendix 2).

(1) The First Intake of Experimentals (Groups 1, 2 and 3).

In answer to the 8 questions Resource People reported as follows:

(a) Describe the kind of work you have done with Project students.

Work done with Project students related to the following: directed a chess tournament--helped study why chess is skillful; taught beginning typing; background study of early Roman period; taught self-defense--Karate; writing and editing some newspaper articles to be incorporated into a magazine; covered general sources of career information; teaching, demonstrating and developing chess skills; led tours, narrative, class discussion relative to law; discussion of paranormal phenomena-illusion, construction of articles and advertisments for a magazine; individual study in creative writing; creative problem solving using simulation

games; activating the imagination and creativity; taught Spanish; did creative dramatics from pantomine through improvised situations; discussion of Shakespeare and two of his plays; reading, questioning, took a look at Reading Machines; divided large group into 3 groups and worked with "War of Worlds" broadcast; poetry--added to a collection of poems, discussed styles, created posters; built towers, mountains and machinery; eat in a nonverbal feast; invented a pulgar; did exercises in fundamentals of debate principles and procedures; discussions on subject relating to topic, picture studies, collages; research and writing--utilized filmstrips, tapes, reference materials, field trip to Marshall University Library; techniques for increasing speed and comprehension when reading were taught; demonstrated and critiqued the various individual and team speech events; presentation and discussion of logic, opinions, science and philosophy; designed and organized a magazine; and the like.

(b) What amount of meeting time did this work entail?

This ranged from 20 minutes to 11 hours and 30 minutes depending on the activity pursued.

(c) Comment briefly on the response of the students to this work.

Students were generally reported to have positive reaction to their activities showing joy, enthusiasm, excellent and genuine learning.

(d) What achievements or talent growth (if any) followed?

Students gained a little more understanding of how to play good chess; learned some symbols; learned research and how to draw conclusions scientifically; developed basic skills of self-defense; wanted to continue writing and putting more detail and descriptions into writing; developed additional research skills and ability to adapt

"knowns" to totally new situations and adjusted easily and successfully to them; became more skilful in analysis; learned rules and notation more readily; became more highly motivated; began to grasp concept of a legal and judicial system; information enlarged; more objective outlook; good grasp of principles and purposes of journalism; discusses projects, and improves and corrects them; learned how to read Spanish; read much and were able to discuss different authors'contributions; became more poised and mature; intepreted passages more maturely; learned how to type; talent growth in stage make-up; showed interest in new styles of poetry; were more conscious of spelling correctly; showed better understanding of language; believed there was an appreciable amount of increase in self-knowledge; showed development in analytical and logical thinking; were more thoughtful about rules, laws and their place in society; showed greater use of the imagination and creativity; showed ability in planning a game and using strategy more deliberately; manifested substantial improvement in ability to assume control of situation and inquiry; learned more about locating materials for research; and demonstrated superior ability to deabte on issues of importance.

(e) How adequate were Project materials and equipment to do this work?

Generally materials and equipment were found to be adequate. It was suggested that the Project could provide better library facilities for drama, game and play anthologies, written material for improvisation, and more resource materials specifically for debates.

(f) To what extent have you found your role and function as facilitator and Resource Person satisfying?

Resource People have found these functions gratifying, rewarding, stimulating, fulfulling, joyous, challenging and growth inducing.

(g) Other Observations.

Resource People would prefer to have more students to work with, have found students generally cooperative and extremely likeable, with little need to be pushed, quickly distracted, quick to comprehend and not easily perturbed, and mature in attitudes with shyness overcome. They also observed that students get restless in the afternoon and suggest meeting students more often.

(h) Recommendations.

Their recommendations included the following: improvement of skills should continue; research on early Roman period and its influence on Europe and America for which filmstrips involving Roman Art were needed; ensured continuance of program; reduction of class size especially for debates; should introduce the study of economics; need for more books on chess was observed; more time was needed for research and writing; and should increase class space and reduce noise level.

(2) The Second Intake of Experimentals (Groups 4, 5, 6, 7 and 8)

In answer to the eight qestions of the questionnaire Resource People reported as follows:

(a) Describe the kind of work you have done with Project students.

Work done with Project students of the younger and older groups of experimentals related to the following:

Younger Experimentals (Groups 4, 5 and 6): Taught them to make puppets and helped them to conduct a creative puppet show; introduced them to childrens' literature, appreciation of art and storytelling; encouraged research, discussions, debates, independent speech, questioning and evaluating; explored the behavior of animals, and used a maze and rodents to test behavior under different conditions; taught basic techniques to improve playing basketball; construction of devices and uses of solar

energy was discussed; taught terrarium building; encouraged laboratory activities concerning the human body; conducted health biology sessions; taught several scientific and mathematically related topics; and taught them to build and paint simple wood projects.

Older Experimentals (Groups 7,and 8): Potted plants, learned cutting techniques, grafting techniques, and soil mixing; gave theoretical and debating experience; gave individualized instruction in chess; researched biographies of successful young adults, characteristics which complemented success in careers, historical study of careers in Applachian Region; introduced video-taping, and using and editing news from Associated Press for instruction on voice projection; taught them about contests in public speaking, types of contest rules, gave some practice in judging each event; introduced them to some psychology; gave emergency medicine lessons; showed how statistics applied in today's world; and held discussions and field trips studying the aspects of wildlife biology.

(b) What amount of meeting time did this work entail?

This ranged between 3 and 12 hours for the younger groups and 4 and 5 hours for the older groups.

(c) Comment briefly on the response of the students to this work.

Students of all groups generally showed joy, enthusiasm, interest and excitement in their activities.

(d) What achievements or talent growth (if any) followed?

The younger groups showed growth and gains in: poetry appreciation and built motivation for further study; knowledge of history of fashion; and appreciation for the art of storytelling and for outstanding children's literature; made puppets; developed understanding for animal behavior; gained insights into individual movements of a basketball player; learned to think independently and use the scientific method in researching problems; broadening knowledge of energy and appreciation of solar energy

possibilities; made terrariums; acquired better awareness of the functions of the human body; ;involved themselves in the exchange of ideas and furthered their interest in health sciences; and learned to use tools. The older groups showed growth and gains in: skills of debate; ability to keep records of progress in games, being more adept at self-evaluation of potential and having sounder insights about the characteristics of success in careers; Further, they made more successful project presentations, were better able to analyze and describe sample data, and to apply their scientific knowledge.

(e) How adequate were Project materials and equipment to this work?

Generally materials and equipment were found adequate. Resource People felt the need for more room space, better laboratory and woodwork facilities, and a greenhouse.

(f) To what extent have you found your role and function as facilitator and resource person satisfying?

Resource People have found their functions gratifying, rewarding, stimulating, fulfulling, joyous, challenging and growth inducing.

(g) Other Observations.

In addition they observed that students displayed intellectual curiosity and were on the ball, with some tendency for a few young ones tonbe somewhat "cocky," with some older ones in need of counselling.

(g) Recommendations.

Recommendations for the younger ones included the continuance of the Project; the acquisition of the skill of dribbling and passing in basketball; longer sessions; running rodents through a maze with higher walls with no screen cover to aid mice retrieval; greater flexibility in scheduling Saturday independent and topical studies sessions; opportunity to observe some wild animals either through movies or real life; Keeping

groups to the size of no more than 10 each; and more woodwork for them.

Recommendations for the older ones included the continuance of the project; arrangement of sessions to take place during evenings or school days; restriction of project to warmer months so that more field work as in wildlife biology could be arranged ii planning for a similar project in the future.

COORDINATORS' EVALUATION

The Coordinators of the Project were also asked for information regarding several aspects of the Project and supplied this in response to a questionnaire (Appendix 2) as follows:

I. Program Development & Execution

A one day inservice workshop was scheduled to acquaint resource people with the expectations of the project in their performance with TAG students in providing leadership roles, individual research, resource places, development of library skills, and tangible and intangible rewards.

The greater emphasis on independent study did provide the students an opportunity to make greater progress by spending more time at in-depth study of a particular topic. It was found, however, that independent study performed in conjunction with mini-sessions produced superior results. Also it was found that the committment of Resource People who conducted mini-sessions was far greater than those who did not.

In addition, Dr. Khatena offered several other recommendations that were attended..

1. The Coordinator's incorporated into the materials to be used in creative problem solving sessions many of the ideas and materials from New Directions in Creativity by Joseph Renzulli, for the purpose of emphasizing the development of fluency, flexibility, originality, and elaboration.

The creative problem-solving sessions were designed by the coordinators and a team of three resource people, who also conducted the sessions, in accordance with recommendations made by Dr. Joe Khatena in the previous year's End-of-Grant report. These sessions were planned individually and were evloved from stated needs, ideas and wishes of the TAG students. They were:

Session 1

"Make Your Own World" - A simulation games
Activities included:
1. Role playing
2. Decision Making
3. Student Involvement
4. Leadership Roles

Session 2

"Turtles"
Activities included:
1. Discussion
2. Games, Puzzles, Optical Illusions, Group and Individual Participation

Session 3

Mark II "Can You Design It"? Designing ideal classroom activities included:
1. Role playing
2. Leadership Roles
3. Rewards
4. Problem-Solving

Session 4

Simulation and Role Playing -- School Board, Principals, Teachers
Activities included:
1. Role-playing
2. Problem-Solving
3. Leadership
4. Brainistroming

Session 5

"Curriculum for New School"
Activities included:
1. Leadership Roles (moderator)
2. Decision Making
3. Brainstorming
4. Rewards

Session 6

"Abstract Reasoning"
Activities included:
Debate
Decision Making
Individual and Group Discussion

Session 7

Mark III "Polictical Campaign"
Activities included:
Small Group Interaction
Decision Making
Leadership Roles

Session 8

"Techniques of Creative Problem Solving"
Activities included:
Individual and Group Participation
Brainstorming
Divergent and Convergent Thinking

Session 9

"Who Remains in the Bomb Shelter?"
Activities included:
Role-Playing
Decision Making
Leadership

Session 10

"Design a New Product from Two Old Ones"
Activities included:
Brainstorming
Group Discusssion
Leadership Roles

Creative-Problem Solving

The creative problem solving sessions were designed by the coordinators and a team of three resource people, who also conducted the sessions, in accordance with recommendations made by Dr. Joe Khatena in the previous year's End-of-Grant report. These sessions were planned individually and were evolved from stated needs, ideas and wishes of the TAG students. They were:

Session 1

"Make Your Own World" - A Simulation Game
Activities included:
- Role-playing
- Decision making
- Student Involvement
- Leadership Roles

Session 2

"Turtles"
Activities included:
- Discussion
- Games, puzzles, optical illusions
- Group and individual participation

Session 3

Mark II "Can You Design It"? Designing ideal classroom activities included:
- Role playing
- leadership roles
- Rewards
- Problem solving

Session 4

Simulation and role playing -- school board, prinicpals, teachers
Activities included:
- Role playing
- Problem solving
- Leadership
- Brainstorming

Session 5

"Curriculum for New School"
Activities included:
Leadership roles (moderator)
Decision Making
Brainstorming
Rewards

Other materials introduced into the creative problem-solving sessions included Scope/Visual by Scholastic Book Co., which were applied in the area of:

1. Abstract reasoning
2. Vocabulary building
3. Problem-solving
4. Observation skills
5. Determinining sequence

Some of the activities for implementation of creative behavior were designed from suggestions by Frank Williams in his book, Classroom Ideas for Encouraging Thinking and Feeling.

2. The coordinators encouraged the application of creative thinking strategies suggested by Dr. Renzulli's program in many areas of student learning under the guidance of the various resource people.

The four creative thinking abilitites were explained to each of the science and math resource people, and the coodinator requested that they incorporate in their plans opportunities for exercising these abilities.

Language arts resource people effected the implementation of Renzulli's strategies in the following subjects:

1. Advanced Debate
2. Journalism
3. Creative Writing
4. Public Speaking
5. Study Skills
6. Short Stories
7. Research & Writing
8. Critical Reading

3. The coordinators planned mini-courses and arranged appropriate resource people to encourage the experimental students to strive for higher achievement in their areas of interest.

Art and music advanced mini-courses included photograph developing and printing, music appreciation, an investigation into electronic music, and ceramics and acrylic painting were extended to the third year.

Science and math advanced mini-courses included two offerings into electronics, courses in computer technology and programming, studies in solar energy, a chemistry course in qualitative analysis, and study of animal behavior.

Language arts advanced mini-courses including law, debate, spanish, chess, creative writing, creative dramatics, and journalism were extended into a third year.

Other language arts advanced mini-courses included television broadcasting, short story writing, german, and esoteric studies, were extended into a second year.

Language arts mini-courses introduced for the higher level nature included Shakespeare, latin, and critical reading. Typing was also introduced.

4. The staff established an award system in which books were given to each student who spent a specified number of hours in pursuit of studies at the Center.

Every attending TAG student was given a certificate of participation and a book. The students in the experimental group who achieved seventy hours of study in any subjects were awarded a dictionary, a book in their subject area, a certificate of participation, and certificate of merit.

5. Dr. Khatena's fifth recommendation to include the show of products of learning achievement, was accomplished in the highly successful arts and science festival previously. Because of the restriction of time imposed by the scheduling of 150 additional students into the program and the fewer number of weeks allotted, the special attention accorded products and their presentation to the public as done in the second year of the project, could not be achieved.

The products in art included numerous photographs, paintings, and ceramic pieces.

Science products were: electronics project designed and built, computer programs written, solar cells, ovens and furnances built.

Language arts products were a magazine, a play, video tapes, bicentennial skit, and short stories.

6. The mini-courses were continued unchanged with the achievement of some group end products as objectives.

7. Mini-courses were conducted in such a way as to require basic research on the part of the student. Much research was done by the students in debate in the prepartation of their arguments. Other students in language arts researched the subject of stage make up, chess, law, Shakespeare, favorite historical characters, broadcasting, drama techniques, journalism, creative writing and short stories.

Music students performed research in music appreciation.

Science and math students performed research in the development of solar energy technology, circuitry and circuit design, animal behavior, patterns of cultivation, the development of the internal combustion engine, structural similarities and differences in various animals, the development of modern first aid procedures and the history of flight.

Students in all areas did research in stage make-up and other interest generated in creative problem solving sessions.

While the information developed from this research was used by the students and interchanged as they pursued studies in the various subjects, there was insufficient time to permit them to develop research reports.

8. The coordinators encouraged the students to use the various libraries available to them e.g. Marshall University, PACE, and the county library.

Music students used the library in doing research for music appreciation and basic skills. In math and science, the library was used through solar technology circuitry, patterns of cultivation, engines, animals, and first aid. Language arts studetns used the library in debate, famous characters, broadcasting, Shakespeare, and creative writing.

9. The ninth recommendation could not be fulfilled because time did not permit the organization of an exhibition or development of an Arts and Science Festival, which was so well received the second year, that its exclusion this year was a disappointment to the children, parents, resource people, and the coorators alike. The students did have an opportunity to share their products somewhat, however, by making copies and disseminating them to parents and other students. Art products were displayed throughout the year at the PACE Center and at state and national meetings.

10. The coordinators created leadership opportunities and each experimental studenthad several chances to assume leaderhsip. In film making, each student directed the filming of his product while the others served as performers. In science, math, and language arts mini sessions, the leadership role was rotated so that in each activity a different students was assigned the role of group leader. The creative problem-solving sessions were designed so that each student attending would assume a leadership role as often as possible.

11. Accurate records were kept of number of hours student spent at PACE, number of hours he spent working on project outside of PACE, names of projects, resource personnel and student evaluation sheets, leaderhsip roles, and counseling sessions.

12. The coordinators continued to seek the cooperation of teachers.

13. Sessions for TAG students were held on Wednesday.

14. Transportation of students was not within the realm of coordinator's responsibility. Car pools were encouraged. PACE Coordinators informed students during the first weeks of sessions that awards would be given for participation.

15. Testing was held at the PACE Center and smaller groups were tested at one time.

16. Every effort was made by coordinators to prevent loss of subjects.

II. Progress Made by Children of the Experimental Group

STUDENT ACTIVITIES IN LANGUAGE ARTS 1975-76

Saturday Sessions

At the beginning of the last year of Project TAG, the staff agreed that the students required additional time in their Saturday sessions for independent studies reciprocally less time for participation in mini-session activities. The first four-week term mini-sessions in Language Arts to be given on each Saturday were:

1. Careers
2. Chess
3. Law III
4. Strange, but True
5. Advanced Debate

Prior to the erm each TAG student was afforded an opportunity to select the indepth study he wished to pursue. Those chosen were:

1. Public Speaking
2. Debate
3. Chess
4. ESP & Dreams
5. Creative Dramatics
6. Stamp Collecting
7. Creative Writing
8. Journalism
9. Spanish
10. Karate
11. German

The second four week term mini-sessions in Language Arts selected to be given each Saturday were:

1. Chess
2. Solar Energy
3. Strange, but True
4. Advanced Debate

Prior to the term each TAG student was afforded an opportunity to select the indepth study he wished to pursue. Those chosen were:

1. Speech
2. Solar Energy
3. Debate
4. German
5. Spanish
6. Creative Writing
7. Latin
8. Typing
9. Chess
10. Karate
11. Creative Dramatics
12. Journalism

Wednesday Sessions

For study during the Wednesday sessions of the last year, each student in the experimental group selected for study one of the 12 basic skills to which he devoted the first hour. Those basic skills included:

1. Critical Reading
2. Shakespeare
3. Study Skills
4. Music
5. Research & Writing
6. Short Stories
7. Math
8. Notation
9. Biological Science
10. Physical Science
11. Basic Art Techniques
12. Music Appreciation

Those basic skills chosen by Language Arts students were:

1. Critical Reading
2. Shakespeare

Thereafter, the plan for the day varied with Group A and Group B students.

Group A

2 hours independent study
1 hour Creative-Problem Solving
1 hour group activity
  a. Simulation
  b. Stage Techniques
  c. Drama Techniques

Group B

2 hours independent study
1 hour Creative-Problem Solving
1 hour independent study

The independent study time for Group I was devoted to subjects including:

1. typing
2. television broadcasting
3. spelling
4. Latin
5. creative-dramatics
6. poetry

The independent study time for Group II was devoted to subjects including:

1. creative writing
2. chess
3. dramatics
4. stamp collecting

OUTSTANDING INDEPENDENT AND GROUP PROJECTS IN LANGUAGE ARTS

The TAG students who participated in the language arts debate studies spent most of their time at the Marshall University Library researching special stubjects and preparing their position for debate to be held at the PACE Center before an assemblage including TAG students, parents, and other interested persons.

The TAG students who participated in the language arts law studies spent most of their time under the guidance of an attorney learning first hand about the working of the law. They visited the county courts, the Sheriff's Office and the jail. They visited the attorney's office to inspect his library. The attorney and a local Justic-of-the-Peace set up a mock trial and enacted the proceedings involving resource people and the law students.

The TAG student who participated in language arts journalism studies, published the second edition of his magazine, "White Lightning", in which he included his own writings in sports articles, short stories, cartoons, political articles, and news articles.

A TAG student who participated in language arts playwriting completed a play entitled "Don't Underestimate the Power of Your Mother." Time did not permit production of play.

Also worth of special mention are the creative dramatics group, the Spanish study group, and the chess club, whose activities, while they did not generate a major product because of time limitations, still thrived after three years.

15-16 Year Olds

For their 5 Saturday sessions, these students chose the following language arts mini-sessions:

1. Broadcasting
2. Contest Public Speaking
3. Debate
4. Psychology
5. Law
6. Careers

9-10-11 Year Olds

For their 5 Saturday sessions, these students chose the following language arts mini-sessions:

1. Creative Dramatics
2. Sensitivity
3. Pantomine
4. Story telling
5. Puppets
6. Character of Your Choice

Odds & Ends

Counseling sessions were held for each student who participated on Satruday or Wednesday.

Students were given a shorter evatuation form the last year.

Control Group

A session was held on Saturday for the control group. They participated in the following activities:

1. Creative problem-solving steps
2. logic games
3. Auction
4. Dr. Khatena's Man
5. Films: "Why Man Creates"
   and "Dot and the Line"
6. Trust walk
7. Listening game

Awards

Awards in the form of certiciates for outstanding achievement were given to the experimental groups. In addition all students were given a certificate for participation in the project.

SCIENCE AND MATH PROGRAM

1975-1976

For the final year of the project it was decided that more time was needed for independent study projects involving members of the experimental group. The amount of time devoted to mini-sessions was to be decreased during the year and the time for independent study was to be increased. This was accomplished in the following manner:

First Saturday Term

Four hours of the day were devoted to mini-sessions. The science and math topics covered in these mini-sessions were electronics, qualitative chemistry, animal behavior, computers, and solar energy. Some of these topics were new offerings, but most were continuances of sessions that had been begun previously.

The remaining two hours of the day were devoted to indepedent study topics. Some of the science and math topics dealt with in independent study during the first Saturday term were solar energy, rodents, animal psychology, computers, statistics, algebra, and anatomy. As in the mini-sessions, most of these topics were continued from previous sessions.

Second Saturday Term

Three hours of the day were devoted to mini-sessions. The science and math topics covered in these sessions were computers, electronics, solar energy, and animal behavior.

Three hours of the day were devoted to independent study topics. The science and math topics covered in these sessions were wildlife biology, computers, agriculture, aeronautics, karate, solar energy, compartative anatomy, and math.

Experimental Group A Wednesday Sessions

The first hour of each day was spent in basic skills area. The science and math basic skills areas were physical science, biological science, and math topics.

The second and third hours of each day were spent in independent study topics. The science and math topics were meteorology, algebra, mechanics, computers, and emergency medicine.

The fourth hour of each day all of the children participated in problem-solving sessions conducted by three resource people.

The fifth hour of each day was spent in various large group activities directed by the same three resource people who were in charge of the problem-solving sessions. As a result of this, most of the large group activities were extensions of activities initiated during the problem-solving hour.

Experimental Group B Wednesday Sessions

The first hour of each day was spent in the same areas as for Group I.

The second, third, and fifth hours of each day were spent in independent study topics. The science and math topics covered were mechanics, comparative anatomy, agriculture, emergency medicine, and aeronautics.

The forth hour of each day was spent in problem-solving sessions.

Sessions for Older Children

Five half-day sessions were held for our older group of children. All work done was in the form of mini-sessions. The science and math mini-sessions were botany and ornamental gardening, statistics and probabilities, emergency medicine, wildlife biology, and solar energy.

Sessions for Younger Children

Five half-day sessions were held for our younger group of children. All work was in the form of mini-sessions. The science and math mini-sessions were animal behavior, bicycle maintenance, carpentry, into the fourth dimension, and chemistry.

Comments

The most popular science and math sessions that were conducted with our experimental group were computers, electronics, solar energy and emergency medicine. As the children attended these sessions it was evident that they were very much interested in what they were doing.

For the older children the most popular sicence and math sessions were botany and ornamental gardening and emergency medicine.

For the younger children the most popular science and math sessions were animal behavior and chemistry.

PRODUCTS WORTHY OF SPECIAL MENTION

The children in the various solar energy sessions have designed and built solar furnaces, solar ovens, and solar distillers during the sessions and have tested these items for their proposed usages. Each of the items that were constructed fulfilled the purpose for which it was intended although some modifications were necessary from time to time.

The children in the animal psychology and animal behavior sessions have designed and built a rather complicated maze in conditioning experiments with mice and gerbils. The children tried various types of stimuli and measured the effects of these stimuli on the behavior of the animals.

MUSIC

The students in the experimental group have participated in a variety of activities during 1975-76 in Project TAG. Most chose to continue in the same activities on Saturday as were selected for Wednesday. In most instances, the independent studies were an extension of their Wednesday and Saturday activities. The three activities most frequently chosen for regular Wednesday sessions were are techniques, music appreciation and photography. Ceramics and acrylic painting were the most popular art classes. This may be attributed to the fact that most students in the ten through twelve age group (experimental group) have not had the opportunity in public school to be exposed to work in these areas.

The students selected ceramics, movie making, acrylics, and photography for their favorite Saturday activities. Both movie making and ceramics were two hours in duration, which permitted each student that participated to finish what he had begun in one session. Many of the students expressed an interest in learning more about photographic technique so an area was designated as the darkroom and students learned to take pictures, develop and print them, through the assistance of the two resource persons. By using a team of teachers, it was possible to work with more students at one time. The same team worked together in the movie making class. Both of these mini-sessions were extremely popular. None of the students participating in acrylics, movie making, and photogrpahy have been able to participate in classes in these areas before because the cost has been the prohibitive factor.

Movie making activities have served as an excellent mehtod of developing leadership ability in that each student had the opportunity to serve as the director of a particular film. Each student had numerous opportunities to direct, plan what was to be filmed, film the scene, and serve as a critic of the final product.

The independent studies chosen for most students were movie making, photography and art activities, with the exception of three that wanted to develop their ability in flute and guitar techniques. Each was provided with a resource person in these two areas.

Although one of the objectives for the students in the experimental group was to develop skills in research, it appears that the students much prefer to become involved in activities in which they can work with others and achieve a good final product as a group.

The students involved in the music appreciation mini-sessions had the opportunity to various types of music from Bach to rock. This included the study of electronic music. Each student had the opportunity to go to Marshall University to be exposed to the electronic music lab and to learn how this is being used in music of today and the future.

It is my observation that one tremendous advantage that the students in Project TAG have is that they have learned by doing, rather than by reading about something.

III. The School System: Its Relationship and Support

The administrative staffs of the schools and school systems have been very cooperative in granting permission for students to attend on school days, in some cases providing transportation for testing. There have been individual teachers, however, who have disparaged the attendance of project activities to the point that some students have dropped from the project. These teachers have resisted all attempts to establish a basis for understanding of Project TAG.

IV. Parents: Their Role and Support

The parents have again been outstanding in their support of the project. They have been willing to contribute their own time to see that the children attended and took part in PACE activities. Some of the parents have expressed a sincere concern about the future of their children's education after the project ceases. These parents see Project TAG as a bright spot in their children's learning and are concerned that some of the counties in the region appear to have no concrete plans to provide the gifted with adequate attention. Because of their ability to provide extra curricular activities for their children, some parents have been indifferent to the project's efforts.

V. Resource People

The resource people have brought a dimension to the project that is impossible to find in any conventional school situation. The project coordinators were, in most cases, able to provide resource people with very specific skills and who are interested in children. These resource people have been motivated by their own interest in the skills and their eagerness to share them with others who want to share them. Because of this, an ideal learning climate existed in a majority of the sessions, and the students have been highly motivated in their studies.

VI. Materials and Equipment

Materials and equipment were excellent throughout the project. Limited funding made some items of equipment for particular projects unattainable, but they were few.

VII. Work of Coordinators Outside the Center

MATH & SCIENCE

Math & Science coordinator has made materials available to teachers in the region, assisted parents in arranging for ways to help their children while in the project. The coordinator is making arrangements for students to become involved in projects even when PACE Center closes. The coordinator has conducted sessions on creativity in Marshall University classes about gifted, and has conducted workshops in math & science.

LANGUAGE ARTS

The language arts coordinator conducted a workshop for the West Virginia Reading Council and made a slide presentation about Project TAG. The coordinator conducted a workshop and made a slide presentation about Project TAG to Alpha Beta Chapter of Alph Delta Kappa. The language arts coordinator helped a local teacher who had a gifted in her class. She also arranged for Dr. John C. Gowan who is immediate Past President of the National Association for Gifted Children and Editor of the Gifted Child Quarterly to speak to the Cabell County Reading Council. She also conducted a session on "creativity" for a Marshall University class.

VIII. Staffing

With the addition of a part time coordinator, and with the present number of students, the present staff has been adequate.

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With the addition of a part time coordinator, and with the present number of students, the present staff has been adequate.

IX. On-going Development of the Coordinator

ART AND MUSIC

The art and music coordinator has attended: dissemination Conference at Pipestem by Title III; State Conference for Gifted Children in South Charleston; currently President of the regional ASCD; attended state ASCD Conference in Huntington and participated on the program; attended NAGC meeting in Chicago and contributed to the workshop conducted by the PACE Center.

The art and music coordinator produced the PACE newsletter that was sent to all regional teachers and administrators; she also compiled pertinent information into a packet for the purpose of dissemination to visitors or to anyone wanting information about the TAG Project.

MATH & SCIENCE

The Math & Science coordinator is working toward qualification certification in Special Education (Gifted) and has completed two courses of study. He currently completing his certification as general supervisor at Marshall University. During the summer of 1975 he attended the 21st Annual Creative Problem Solving Institute at Buffalo. He also attended regional supervisors meetings.

LANGUAGE ARTS

The language arts coordinator has attended the NAGC Convention in Chicago and participated in the workshop conducted by the PACE Staff. She also attended State ASCD Meeting in Huntington and served as hostess; attended and conducted local Reading Council meetings; achieved 15 hours credit at Marshall University 1975-1976 (12 in area of gifted, 3 in teaching of reading); has been the President of Cabell County Reading Association

1974-1976; is a member of the West Virginia Board of Education's Committee on Reading Competencies; is a member of Marshall University Curriculum Committee in Reading; is a member of West Virginia College English Council nominating committee; and is historian in Alpha Beta Chapter of Alpha Delta Kappa.

ALL STAFF

All served as consultants to the Director of the Huntington Galleries and his art specialist; conducted inservice training for resource people working in TAG; and also served as consultants and disseminated information to numerous people who visited the PACE Center from the region, the state, Marshall University, and from around the country.

X. Recommendations:

MATH & SCIENCE COORDINATOR

Additional space is still needed. Stronger support is still needed from principals. Incorporate project into the classroom to the extent that teachers will have to cooperate more fully. More emphasis on teacher training services is needed. Arrangements should be made to offer certain courses for high school or college credit. Simpler forms of record-keeping should be devised. For a further project, computer assistance should not be ruled out as a method of record keeping.

LANGUAGE ARTS COORDINATOR

Project TAG has met and satisfied the needs of many children who have great needs and high hopes for the future. Significant among the many accomplishments of the project is the development of sociability of the students, when given a climate of permissiveness and in association with their peers: e.g., other gifted children of nearly the same age. This is probably the only opportunity of their life time that they will have to choose what they want to study and receive the materials needed and resource people to assist them in pursuit of their goals. It is

therefore my sincere hope that the administrators of school systems from which these students have been assembled realize the importance of continuing these types of educational experiences and, indeed, offer them to all gifted children throughout their system.

DIRECTOR'S EVALUATION

The director was also invited to make observations of the Project and these have been included as follows:

1. Project Talented and Gifted is nearing the completion of Phase IV as described in the Revised Project Proposal. Activities conducted during the first three phases of the Project were discussed in the first and second year evaluation reports. Phase IV was conducted from July 1, 1975 to June 30, 1976. The major objectives of Phase IV were as follows:
   (a) Identify talented and gifted students (6 to 17 years). This was done with the exception of the 6, 7, and 17 year old age groups.
   (b) Initiate model programs (6 to 17 years). This was also done with the exception of the 6, 7, and 17 year old groups. The decision to exclude these three age groups from the Project was made in the fall of 1974. It was obvious that these additional students could be handled only with additional staff, space, and financial aid. This was not forthcoming so the decision was made to work with ages 8 through 16.
   (c) Design a model for a Regional School for gifted students. A committee representing the Project staff, the school systems of Marshall University, and the State Department of Education, was appointed to develop a model for the

Regional School for gifted students. The model has been developed, and will be included in the end of grant report.

(d) Transfer program to RESA. While RESA will work some with programs for the gifted, this Project will not be transferred in total to the RESA Agency. The main reasons being that: (i) Project TAG actually worked with a small segment of the total gifted student population of the region. A continuance of this Project should provide participation of all gifted students in the region. RESA does not have the funds or facilities to do this at present; (ii) most counties in the region were working toward developing their own programs for gifted students. The staff of Project TAG has assisted these counties in planning their programs. These programs will be conducted in lieu of this Project; (iii) no funding is available to continue the present Project, or provide for implementation of the Model for the Regional School; (iv) RESA has limited funding. It does not have funds to continue the program of Project TAG; (v) and, Project TAG was federally funded as an ESEA Title II Experimental Program to be evaluated after a three year period. During this period it has provided invaluable assistance to this region, sections of this state, and areas of the nation in planning their programs for gifted students.

(e) Internal and external evaluation will be completed as scheduled.

2. As the project prepared to move into the third year, a careful study was made of the first and second years evaluation results. Staff meetings were held to discuss possible methods of improving the program. The recommendations of the evaluation were carefully studied and steps were taken to modify the program to comply with these recommendations. The action taken is discussed in detail in the Coordinators' Evaluation section of this report. In-service training sessions during the month of August 1975 were held for resource persons to acquaint them with strategies for working with gifted students. The workshops helped, and for the most part the resource people did a good job this year; however, a few were not as dependable as they should have been, and did not show up for all of their classes. This was bad for all concerned, and the Project Staff would substitute for them in these cases to prevent a total loss of learning opportunity for the student. Most resource people were excellent and dedicated in their guidance of students in their learning pursuits, and are commended for their work.
3. It is regretable that more time was not available to work with those members of the experimental group who so thoroughly enjoyed working in small groups on their own here at the center. However, it was necessary to allocate some time to all groups, so that all participants would have opportunity to attend sessions at the center. This year's schedule provided for five Saturday sessions for each group of 8, 9, and 10, and 14 and 15 year olds, and eight Saturday sessions for each group of 10, 11 and 12 year olds of the first intake of experimentals. In addition to this, the experimentals of the first intake attended on alternate Wednesdays. Attendance at these sessions was about the same as last year with some students attending all sessions, while others were quite erratic in their attendance. As was the case last year, some students did not

attend Wednesday sessions due to pressure from their classroom teachers to have them remain at school. Others had transportation difficulties and conflict with other school and non-school activities. Since no grades are given in the Project, only those students who were truly interested in the pursuit of knowledge for the sake of learning, attended regularly. Awards were given at the end of the year to these students who worked so diligently.

4. The staff continued to improve themselves professionally, taking college courses, and attending conferences and meetings related to education of the gifted. Project presentations were made at the National Association for the Gifted Convention in Chicago, and the State Title III Meeting at Pipestem Park in West Virginia. Many requests for information have been honored, and many people visited this center to meet the Project staff. The staff continues to work as a cooperative unit with each member making his or her contribution toward the progress of the program.
5. The program progressed quite smoothly through the third year. Students continued to show interest in the mini-sessions and independent study projects, and those students in the experimental group of the first intake who were dedicated to Project TAG were quite sad to see it draw to a conclusion. However, they realized that they had gained much from the Project which would enhance their lives in the years to come.
6. Final testing sessions ran smoothly. The groups were limited to a maximum of 40 with most groups running from 20 to 30. The sessions for the 8, 9, and 10, and 14 and 15 year old groups lasted for a total of approximately 3 hours. Sessions for the experimental and control groups (ages 10 to 12 years) lasted approximately 2 hours and 30

minutes each over a 4 day period. Some problems were encountered in testing the experimental and control groups as they were required to miss classes for 4 days. Perhaps these tests should have been scheduled all day for 2 days, for some students did not participate due to the four day span. Some tests were later scheduled for make-up on Saturdays to offset this situation.

7. In conclusion, it is the opinion of the Director that Project Talented and Gifted has been quite successful in fulfulling the objectives stated in the Revised Project Proposal.

PART 4: APPRAISAL SUMMARY CONCLUSIONS AND RECOMMENDATIONS

1. Appraisal

This section of the report will concern itself with an appraisal of the experimental evidence of the Program relative to Groups 1, 2 and 3, and Groups 4, 5, 6, 7 and 8: evidence derived from perceptions of student participants and their parents relating to the creative development of the students of the Program; and other sources of Project evaluation as derived from Student and Parent appraisal and from reports made by Resource Personnel, Coordinators and Director of the Project.

(a) Student and Program

(i) Groups 1, 2 and 3. The experimental findings of this report have provided evidence that the talented and gifted students of the Project who were exposed to a Program of activities rooted to creativity over a period of 27 months have shown no significant improvement in figural fluency, flexibility, originality and elaboration as measured by the Torrance Tests of Creative Thinking, and verbal originality as measured by Thinking Creatively with Sounds and Words. However, the evidence does show significant improvement on figural fluency and flexibility for controls.

Further, the evidence obtained from the creative self perceptions of experimentals and controls as measured by Something About Myself did not show any significant improvement of experimentals over controls resulting from exposure to the Program on all six creative orientations (Environmental Sensitivity, Initiative, Self Strength, Intellectuality, Individuality and Artistry) and the total scale.. However, the analysis of experimentals perceiving creative growth in the Program showed significant improvement on all six creative orientations and the total scale.

In addition no significant improvement in nonverbal and verbal intelligence measured by the Standard Progressive Matrices and the

California Test of Mental Maturity respectively was found for experimentals over controls resulting from Program exposure; but in the case of verbal intelligence significant interaction effects of training x age was found which tended to favor Group 1 experimentals and Groups 2 and 3 controls.

For achievement,as measured by the Stanford Achievement Test, no significant improvement was found for experimentals over controls in the areas of Language Arts/ Social Studies, Mathematics/Science, and on the Total Scale.. However, significant interaction effects were found for training x age x testing alone.

Generally, evidence from these several sources indicate that the Program of the Project did not bring about accelerated development of the abilities of talented and gifted students of Groups 1, 2 and 3 exposed to it as anticipated.

(ii) Groups 4, 5, 6, 7 and 8: The experimental findings relative to Groups 4, 5, 6, 7 and 8 showed that no significant improvement in figural fluency, flexibility, originality and elaboration as measured by the Torrance Tests of Creative Thinking, and verbal originality as measured by Thinking Creatively with Sounds and Words had taken place as a result of their exposure to the Program. And this was found to be the same for verbal intelligence as measured by the California Test of Mental Maturity. For nonverbal intelligence as measured by the Standard Progressive Matrices some small but significant improvement was found for Groups 4, 7 and 8. Further, the analysis of their creative self perceptions as measured by Something About Myself, showed improvement in Intellectuality and on the Total Scale alone.

Generally, evidence from these several sources indicate that the Program did not bring about accelerated development of creative thinking abilities and verbal intelligence with some improvement in nonverbal intelligence and in creative self perceptions relative to Intellectuality

and the Total Scale of talented and gifted students of Groups 4, 5, 6, 7 and 8 exposed to it as anticipated.

Among the many variables that may have had a significant effect on the directions of the experimental Program are those related to design; differential exposure of experimentals to the Program; relatively untrained Resource Personnel; continued considerable loss of experimentals and controls; interferences of schooling relative to learning, obstruction by some instructors that affected experimental student attendance, participation and attitude; and conflicting and competing extra mural interests, details of which may be found on Pages 29 to 31.

(b) Project Staff, Student and Parent Reports

Observational data derived from the reports of Experimental Students, Parents, Resource Personnel, Coordinators and Project Director has regarded the Project in positive and complimentary terms, stressing the Program as significant facilitator and growth inducer having considerable impact upon the experimental participants of the Project.

Further, the Director and Coordinators have continued to work with the Project Consultant in refining and developing the experimental Program, and implementing the recommendations of the Second Evaluation Report as well as possible in the circumstances. Feasible extensions in the use of Resource Personnel were made to meet the increased needs of the Project.

As in the earlier phases, the Project has continued to develop professionally and academically in those matters significant to the education of the talented and gifted, and has actively contributed to the enhancement of education in the Region and State, providing services to the larger community, teachers, administrators and various educational groups and agencies. These services were extended by way of consultation,

workshops, and presentations at local, state and national meetings. To these may be added the production of a Newsletter and the continued effective dissemination of information regarding the development of the Project within the state and nationally not only through the occasion of meetings and conventions but also through Project documentation with Resources in Education.

All phases of the Project have now been completed and have been done in the most appropriate way possible in the context of available resources and circumstances. Recognition must be given to the excellent team work and esprit de corps exhibited by the four Project Coordinators and Director in a Project that called for intensive planning, innovation and execution.

Finally it must be mentioned that the Project also fulfilled its goal for designing a model for the Regional School for gifted and talented students. This model will be submitted by the Project Director to the State Department of Education together with the end of grant report at the close of the Project.

2. Summary, Conclusions and Recommendations

This section of the report will summarize the main findings of the Experiment relative to the total Project as recorded in the three evaluation reports, and attempt first to draw conclusions, and next to make recommendations as to the directions that may be taken following the end of the Project 30th June, 1976.

(a) Summary of Main Findings of Experimental Analyses

(i) Creative Thinking Abilities. The experimental findings relate to significant improvement following exposure to the experimental Program in verbal originality as measured by Onomatopoeia and Images in the first two appraisals but not the third appraisal, and significant

improvement in figural flexibility as measured by the Torrance Tests of Creative Thinking for Group 1 only in the second appraisal; otherwise no significant improvement was found in figural fluency, flexibility, originality and elaboration as measured by the Torrance Tests of Creative Thinking, and verbal originality as measured by Thinking Creative with Sounds and Words for all of Groups 1 to 8.

(ii) Verbal and Nonverbal Intelligence. Two appraisals of verbal and nonverbal intelligence as measured by the California Test of Mental Maturity and the Standard Progressive Matrices respectively were made and the findings in the Second and Third Evaluation Reports show no significant gains for Groups 1 to 3. A single appraisal of the findings reported in the Third Evaluation Report for Groups 4 to 8 show no significant improvement in nonverbal intelligence as measured by the Standard Progressive Matrices for Groups 4, 7 and 8. However, the weakness of the experimental design for the study of Groups 4 to 8 may have allowed extraneous variables to account for this change as has been noted earlier in the Design Section of this report.

(iii) Achievement. Appraisal of the effects of the Program on achievement as measured by the Stanford Achievement Test only related to Groups 1 to 3, and was done twice, namely in the Second and Third Evaluation Reports. The findings reported no significant improvement as a result of this exposure on both occassions.

(b) Summary of Main Findings of Observation Analyses

(i) Creative Self Perceptions. Findings on creative self perceptions as measured by Something About Myself and as relating to Groups 1 to 3 showed significant improvement in the areas of Self Strength and Indivduality

for experimentals over controls as reported in the Second Evaluation Report, and no significant improvement in all six creative orientations and the total scale in the Third Evaluation Report; however, when the creative self perceptions of experimentals from one point of time to the next were analysed, significant improvement was found on all six creative orientations (Environmental Sensitivity, Initiative, Intellectuality, Individuality, Self Strength and Artistry) and the total scale as reported in both the Second and Third Evaluation Reports. Findings for Groups 7 and 8 showed similar significant gains relative to self perceptions from one point of time to the next as reported in the Third Evaluation Report.

(ii) Other Reported Information. Generally, Coordinators, Resource Personnel and Parents have reported very positive attitudes towards the effectiveness of the Program. Teacher perceptions concerning student growth in the Program were ambivalent as discussed in the Second Evaluation Report. Experimentals have in the main reported that the Program had made a significant impact accelerating their development and growth both in the cognitive and affective domains.

(c) Conclusions

It is interesting to note that while the experimental evidence relative to group data generally does not support the effectiveness of the Program relative to the development of creative thinking abilities, verbal and nonverbal intelligence, and achievement, the observational evidence does support the effectiveness of the Program as growth inducing both in the cognitive and affective domains. At this point it seems of value to say that much of the experimental evidence has suffered distortion, factors of which have been discussed in each of the three evaluation reports. Further, improvement and growth in many other dimensions of personality must have taken place and will still

continue to do so in dimensions difficult if not impossible to adequately measure, but that are likely to wield positive influence in the lives of the experimental participants and enhance their attempt to become educated. It is also probable that latent creative and effective learning sets have been internalized that will only be manifested in accelerated growth towards excellence at a later time in their development cycle.

(d) Recommendations

The most significant factor of Project Talented and Gifted was its evolutionary nature. A major component of the Project was set in a strict experimental design format with the anticipation from its inception that the results derived would provide some valuable clues for sound decisions to be made at the conclusion of the Project. A review of the findings over the whole period of the Project has suggested the need for productive and pertinent recommendations relative to several dimensions of the Project, namely, the selection process, the Program, and the facilitating personnel.

(i) Selection Process. The procedure for selecting student participants has been described in the Addendum to the original proposal and in the Evaluation Reports. Briefly, selection was based on multiple assessment of potential in the areas of verbal and nonverbal intelligence, verbal and nonverbal creative thinking abilities, and achievement, such that a student was selected if he were found gifted in all areas. The procedure is described in Appendix 1, and while useful to the Project may not be useful in this form for other situations. Under this procedure, for instance, a student who may be gifted in the nonverbal areas of intellectual ability may have his chances for selection jeopardized by his depressed scores in verbal abilities and vice versa. Hence it is recommended that

while multiple assessment measures be used for screening purposes, the identification and selection of a gifted student for educational acceleration should be based on the talent he best exhibits.

(ii) Program. The measured findings of the experiment generally do not show experimentals as having significantly improved as a result of exposure to the Program. However, this may be traced to a number of very important factors, details of which can be found in the Evaluation Reports. What this suggests is that we do not have conclusive objective evidence concerning the effectiveness of the experimental Program. Some strong support comes from the subjective evidence generated by students, parents, and those who were in one way or another actively involved in facilitation aspects of the Program. However, there is the question of whether adoption of the Program in part can be done with some degree of assurance that the components adopted could be of value to the gifted child's education. However, theory and practice do support some of the significant elements of the Program. It is therefore recommended that elements of the Program relating to the teaching of general principles, creative problem solving techniques, research strategies, and proper use of the library be adopted in any educational intervention attempt so that the gifted student will have the tools to enhance and accelerate his development as a contributing member of society.

(iii) Facilitating Personnel. A major problem of the Project was the lack of adequately prepared Resource Personal as facilitators for the gifted. To some extent this was being corrected but never quite reached the required level of effectiveness; and certainly considerable uneveness of skills in this area prevailed throughout the Project. Facilitators of the gifted must not only be well equipped with relevant knowledge and skills but must also have proper and intensive exposure to what was recommended in 2 above so that adequate functioning at a high level of

effectiveness with the gifted can take place. It is highly recommended that arrangements be made for qualified facilitators of the gifted to attend the Annual Creative Problem Solving Institute at State University College at Buffalo where they can be exposed to some of the best talent in the country. This needs to be done in two phases, namely, in the first year of attendance they should enroll for the Basic Program, and to be followed in the second year of attendance by enrolling for the Advance Program. Information regarding this may be obtained from Dr. Sidney J. Parnes, Creative Education Foundation, State University College at Buffalo, 1300 Elmwood Avenue, Buffalo, New York 14222.

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